PSYCHOLOGY OF EXCEPTIONALS

(MUSICALLY GIFTED)

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DR. ARUNA SURI

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FOREWORD

I am glad Dr. Aruna Suri has written this valuable book on the psychology of exceptionally gifted children. The book is based on her Ph. D. Thesis.

Exceptionally gifted children need special attention because if their excellence is allowed to stiffle, they would get frustrated. A research study on them is, therefore, amply justified and rewarding.

I hope the book will be of practical utility to the students, the teachers, the researchers and practising counsellors.

Dated : 20 June, 1984

M.R. PURI
Vice-Chancellor,
University of Jammu,
Jammu Tawi

In Memory of My Beloved Father
Late Shri Prakash Chander Vedalankar

PREFACE

As we look back into history, we find that the entire concept of educating each child to the height of his ability is relatively new. The current use of the term "exceptional" is itself a reflection of radical changes in society's view of those who deviate. The field of exceptional children is so expensive that it is difficult for one person to be sufficiently versed in all areas to do a comprehensive research. Motivated by different research studies in the field of exceptional children, the author of the book felt interested to do research on exceptional children in the field of music. In the present study, therefore, the musically gifted pupils have been identified at the school and college level so that this endowment is nurtured at the very young age. The personality make up of the musically gifted students has brought into light the characteristics of the musically gifted pupils in the present study.

Moreover, the credit of focussing attention of research on musical giftedness goes to Seashore and his associates but after that very few attempts have been made so far. There is no research study at hand wherein the personality traits of musically gifted students were compared with the non-gifted students. No attempt have been made by the Indian Social Context where the Psychological study of musically gifted is made. The research studies conducted in the West report results which oscillate so much that it is not possible to have well chiselled generalizations. Hence, the results obtained badly need validation. Apart from it, in our country, the problem of exceptional children with regard to their location, care, education, training or rehabilitation and psychological make up has hardly attracted any attention of the administrators, public workers and educationists. The problem could be ignored if it is concerned with few children but the problem of the exceptional of all the categories and especially those who are gifted in music is immense and worthy of serious attention from the individual, social and practical point of view. So identification of such children was made and their cognitive and non-cognitive factors were analysed in order to make themselves better, as the growth of each individual to his fullest is the aim of education.

Before I conclude, I wish to acknowledge my deep debt of gratitude to Prof. V.R. Taneja former Head and Dean Faculty of Education, University of Jammu for his guidance in this work. I take this opportunity to express my sincere thank to Prof. C.L. Kundu of Kurukshetra University, Prof. G. Rasool, Dr. Lokesh K. Verma, Dr. N.R. Sharma and Prof. B.D. Damral of Jammu University for their kind suggestions and inspirations. My husband, Dr. S.P. Suri, Reader in the P.G. Department of Education, University of Jammu, assisted in technical and professional areas and in the final editing of the book and hence deserves more credit than this acknowledgement provides.

Last but not the least I am indebited to my mother, Smt. Sataya Bala (Retired Principal) who inspired me from time to time during the course of my study and research.

Jammu (*Tawi*)
15th June, 1984

ARUNA SURI

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CHAPTER I

Introduction

The prevalence of music in society especially in the Indian social context can be very well gauged from the evidence that there is hardly any social function in which music is altogether neglected i.e. marriages, funerals, religious rituals and even war. This fact has been aptly explained by a philosopher in the words, "The music has been the sole guiding instrument in reforming the culture and mode of life of people from time immemorial and even today".

Modern Psychologists have acclaimed music as a therapy to sublimate the behavioural aberrations of human beings with a view to trace the human drive and to examine feelings, emotions and thought processes.

Of all the fine arts, music has been esteemed as the most refined art not only for its emotive appeal to the sentiments of human beings but also because of its distinct influence in shaping a complacent philosophy of life in general. Music in its real manifestation has its roots very deep in the culture of the humanity. Although the degree to which an individual is influenced by the impact of music varies from person to person due to individual differences.

Nevertheless, appreciation of music is one thing and possessing the musical abilities and gifts is another thing. These two distinct processes can be compared with "G" and "S" factors of intelligence. Appreciation for music is the "G" factor because every body is universally attuned to it, while the native gift in music is the "S" factor and it is innate. Musical discrimination is an inborn trait and only very few children can really understand musical compositions. The psychologists and master-minds in music feel that musical ability is influenced by cognitive and non-cognitive factors.

Wing[1] (1955) observed on the basis of his test of music that there is a good agreement between low intelligence and low scores. Shuter[2] (1966) observed that the correlations of intelligence test scores with scores of musical ability test are positive but as low as 0.30. Further, Broadbent[3] (1958) suggested that personality factors play a paramount role in the appreciation and discrimination of musical tones. The personality factors influence the ability to discriminate pitch, intensity, loudness, timbre-cord analysis, rhythmic accent and other properties of tones which are essential to both appreciation and production of music. Wing[4] (1954) believed that composers tend to be introverts and performers extroverts. He argued that introvert girls tend to find delight in music as listeners. In some researches, age differences were also observed but sex differences were almost negligible.

Motivated by these research studies, the present researcher felt interested to see the effect of certain psychological traits on the musical ability of school and college going girls.

1.1. The Felt Need

It has generally been realised today by all nations whether secular or non-secular; developed or developing; democratic or authoritarian that their mere survival very much depends upon how effectively they can conserve and utilize their most precious human resources—their gifted children. "The greatness of nations", says Emerson[5] (1964), "varies with the number of geniuses it produces and the honour in which it holds them".

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1. H.D. Wing, *Musical Aptitude and Intelligence.* Education Today, 5, No. 1 1955, p. 112.
2. R.P.G. Shuter, *Hereditary and Environmental Factors in Musical Ability.* The Eugen, Rev., 58, 1966, pp. 149-50.
3. D.E. Broadbent, *Perception and Communication.* London : Pergamon, 1958.
4. H.D. Wing, *Some Applications of Test Results to Education in Music.* Brit. J. Educ. Psychol., 24, 1954, pp. 161-70.
5. P.E. Emerson, *The Development of Social Attachment in Infancy.* Monographs of Society for Research in Child Development, 29, Serial No. 94, 1964, p. 61.

There is, therefore, an urgent need to identify those who have this potentiality. The conservation and the proper utilisation of the creative potential assumes crucial importance in national progress in all the gifted endeavours.

We are already faced with the alarming rates of wastage and stagnation, mass illiteracy, brain drain, malnutrition and population explosion. No one can afford to overlook the tremendous wastage that results by our failure to identify and develop our most promising youth to the maximum limits of their potentiality.

The identification of the gifted and non-gifted, attempted in the present study, therefore, may provide encouragement to this creative minority. The study of "PSYCHOLOGY" of the gifted will increase our knowledge about the constructs (traits) underlying this ability. A comparative analysis of their constructs at both levels may facilitate the development of profiles of personality of both groups which may in turn help us in studying the inter and intragroup differences.

It is, therefore, important that the Psychological factors of such persons may be seen and the congenial atmosphere be provided so that these potential endowments do not stiffle.

The avowed objective of education is the development of wholesome personality. For the educationists, it is essential to have the understanding of the nature of human personality. The Indian Education Commission[6] (1964-66) observed that education should no longer be concerned with imparting of knowledge but with awakening of curiosity, the development of proper interests, attitudes, values and with the building of essential skills. Viewed from this angle, modern educationists not only demand high academic excellence and the growth of the abilities but also behavioural outcomes which should reflect from the well-knit personality and better inter-personal adjustment of the pupils.

It is obligatory, nay, complimentary on the part of the teachers and educationists that they must get acquainted with all abilities including intelligence, creativity, adjustment, interests, aptitudes, personality traits of the pupil community so that a better rapport be created among them and the ultimate aim of education be realised.

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[6] *Report of the Education Commission*, 1964-66, Summary of Recommendations, N.C.E.R.T., New Delhi, 1967, p. 44.

In the present study, therefore, the musically gifted pupils have been identified at the school and college level so that this endowment is nurtured at the very young age. The personality make up of the musically gifted students at school and college level has brought into light the characteristics of the musically gifted pupils in the present study.

Educationists, psychologists and sociologists are of the view that giftedness in any endeavour should not be allowed to stiffle because that cuts at the very roots of satisfaction and creates overwhelming tensions (Toynbee,[7] 1955). The perserverance of musically gifted children is all the more important because music is one of seven muses (tension releaser) and if musical excellence is allowed to stiffle, the extent of frustration caused to the individual who possesses creativity in music can be imagined and the mal-adjustment thus caused cannot be modified by any method (Coleman[8], 1967). The results and conclusions obtained from present study will be very important from individual and social point of view.

The credit of focusing attention of research on musical giftedness goes to Seashore and his associates but after that very few attempts were made. There is no research study at hand wherein the personality traits of musically gifted students were compared with the non-gifted students. No attempts have been made especially in the Indian Social Context where the adjustment and personality traits are seen. The research studies conducted in the West report results which oscillate so much that it is not possible to have well chiselled generalizations. However, the results obtained badly need validation.

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7. A. Toynbee, *Is America Neglecting Her Creative Minority ?* In C.W. Tylor (Ed.), Widening Horrisons in Creativity, New York, John Wiley and Sons., Inc., 1964, p. 10.

8. J. Coleman, *Abnormal Psychology and Modern Life,* 4th Ed. New York: Scott, Foreman, 1972.

Predictions of the personality traits have been basic in education at all times. It is imperative that a knowledge of the personality traits of the students with varying degree of talents is very much helpful in guiding students into educational and vocational careers. Besides providing basic material for personal counselling and educational and vocational guidance to individuals, a knowledge of group differences may be useful in providing proper milieu at home, at school and at college to particular groups in order to improve their personality traits in the areas in which they are found deficient on an average. This is necessary for equalising educational opportunities by toning down healthy personality traits with appropriate measures and methods in order to meet the goal of democracy and social justice. This knowledge is also likely to be helpful to teachers and educational administrators in their sympathetic understanding of the fact that the unruly behaviour of students of certain categories is mainly rooted in their unhealthy personality traits.

One of the most challenging problems faced by the educational administrators today seems to be that of accurate prediction of the personality traits of students with varying talents in different fields. This problem has aroused the attention of many educational psychologists and is assuming greater importance, day by day, as our society is advancing industrially and technologically and the pattern of education is also growing more and more complex. In view of these factors, it is of vital importance for an educator to understand the dynamics and potentialities of personality traits of the present day students possessing high and low musical ability, for they may be helped to develop healthy personality traits to become productive and creative members of the society.

In our country, the problem of exceptional children with regard to their location, care, education, training or rehabilitation has hardly attracted any attention from the administrators, public workers or educationists. The problem could be ignored if it concerned only a few children but the problem of the exceptional of all categories and especially those who are gifted and non-gifted in music is immense and worthy of serious attention from the individual and social point of view.

We might have in our country over 50 lakhs of gifted children who may have the high intellectual ability on specific academic aptitude and some of these may be creative in art or science, music, dancing, poetry, drama, literature etc. Some of them may be gifted with the quality of leadership of philosophical and other productive thinking as in engineering, mechanics or applied science. Efforts have to be made in this country by the researchers to locate these children on the basis of their records or performance and a more systematic study or survey of the gifted could be made in every State in order to know the personality traits of these children so that their education and development could be planned in a manner that is most fruitful to society. It is not only for the benefit of society and social gain, but also for their own development.

Apart from other considerations, the problem of educating the individual becomes sufficiently easy to tackle if two fundamental principles are kept in view by the educators. These are the facts of individual differences and understanding of each student in terms of his own personality background. All learning in a school or college takes place within the setting of pupil-pupil relationships and pupil-teacher relationships and hence is more significant for an appropriate teaching learning situation. It has been commonly experienced by teachers that good and healthy relationships amongst the students of a class are conducive to efficient learning only when teacher is well acquainted with personality traits of the students. It is due to this fact that now a days educators are concerned not only with the students' intellectual growth or class achievement but also with their social and emotional adjustment, creativity, defences, anxiety, neuroticism, extroversion, motivation, ego-function, and other factors involved in personality development.

It is, therefore, a well known fact that, if we know the personality traits of the students with varying talents, only then we can create a good and happy relationship amongst the members of the class and maintain their mental health and allow them to think, feel and act jointly. Healthy development of personality gives rise to healthy sentiments, feelings and desirable attitudes. A free and contended mind is able to concentrate and this enables the person to learn efficiently. Bad and unhealthy relations between students create mental tensions and give rise to the feeling of frustration and further allow the development of conflicts and complexes which, in turn, spoil the balance and equilibrium of the minds of the students and, thereby, disturb the whole atmosphere of the class. Therefore, most important function of education is to bring into focus the personality patterns of the students belonging to different categories, which, if properly studied, may guide in the direction of proper social, intellectual and emotional development.

Moreover, universalization of education has to a great extent sacrificed quality and has resulted in wastage and stagnation at every stage of school and college education. There is logic in the complaint of the critics and educationists, "that our education system at present serves the mediocres with their average talent and ignores both the 'tops' and the 'bottoms'. It polishes the pebbles and dims the diamonds. The negligence has led to dissipation of energy and has helped to create problems of personality adjustment. The fact cannot be denied that classrooms comprising with students of heterogeneous capacities and varying degree of musical talent pose challenging problems and present tremendous difficulties in the progress of the class achievement. While the musically gifted children suffer from boredom, lack of motivation and lethargic habits, the musically deficient develop antipathy, reluctance and even a deviant attitude.

In such a situation, the teacher's task is quite challenging one. Without the knowledge of the personality traits of such students he cannot do justice to his professional ethics which entails upon him the responsibility of shaping healthy individuals and wholesome personalities. In order to make the best use of our human resources to build up the nation, the personality traits of such students are to be identified.

Thus, the individuals with special ability are one of the most valuable resources of the country. It is they, who build the civilization of nation, who preserve national heritage and contribute to the continuous advancement of science and technology, art and culture etc.

As the gifted cannot be neglected, the non-gifted also cannot be ignored in one area or the other. The philosophy of democracy, in which we have pinned our faith, implies that all children are entitled to the committed ideal, that all those, who can profit from education have right for education regardless of ability, sex, colour or creed.

From these considerations it is evident that the study of personality traits of gifted and non-gifted students in music is needed at every stage of development so that proper guidance and remedial help can be provided to them.

The students whose personality traits are not studied at proper time become a source of great wastage in Indian education. This is not only the wastage of money, but also of the national manpower. Many of the first-rate brains among students of our schools and colleges are allowed to atrophy at all levels of education. India cannot afford to waste this human talent and country's brain resource. Keeping the stated urgencies in view, researcher has undertaken the responsibility of conducting a psychological study of musically gifted girls at school and college level.

1.2. Hypotheses

Hypotheses for the present investigation are laid down as under :

1. Differences exist in gifted and non-gifted on musical Achievement Test.

2. There are significant differences in the personality structure of musically gifted and musically non-gifted girls.

3. The musically gifted girls are more intelligent than the musically non-gifted.

4. The musically gifted girls are more creative than the musically non-gifted.

5. The adjustment of musically gifted and musically non-gifted is significantly different.

1.3. Objectives

The present investigation was conducted to realise the following objectives :

1. To construct musical achievement tests for girls at different academic levels.
2. To find out whether the musically gifted girls differ significantly from the non-gifted girls on the personality patterns.
3. To explore whether there is a significant difference on the intelligence scores of musically gifted and non-gifted girls at the school and college level.
4. To study the creativity in musically gifted and non-gifted girls both at school and college levels.
5. To investigate the adjustment of musically gifted and non-gifted girls at school and college levels.

1.4. Related Literature

It is obligatory, nay desirable to scan the related literature with a view to place the conspectus of the research investigation on sounder lines. The study of the related literature revealed that studies involving the variables which have been taken in the present investigation are scanty. There is no study up-to-date in the Indian Social Context where in these variables have been compared in the gifted and the non-gifted music students in schools and colleges. The researcher, therefore, has made efforts to explore a virgin field of research. Consequently available research studies which are directly or indirectly related have been reported in the following separate heads which are as under :

1. Studies related to musical ability and conative and affective variables.
2. Studies related to musical ability and cognitive variables.

1.4.1. Studies Related to Conative and Affective Variables

Biographical analysis of the great musicologists usually stress their personality buoancy or structure, their psychological abnormalities, sociological uniqueness and to some extent their environmental juxtapositions. Stein[9] (1953) in his study of "Creativity and Culture" has found that musicologists are highly intelligent with vivid imagination, with cool temperament, fine memory, past suffering, unattainable ambition, ability to direct others to work in a desired manner, unstable emotions, inherited talent for composing, readiness to forego present pleasures for future gains and creative geniuses.

The study of Miles and Wolfe[10] (1936) which was conducted on the 50 eminent musicians also obtained results similar to that of Stein.

Szucharewa and Ossipowa[11] (1926) were of the view that persons who are extremely extroverts are surely genius in music. They also studied the relationship between personality types and musical ability. The obtained results indicated that there existed a strong relationship between musical ability and introversion.

Chowdhury[12] (1961) using projective techniques and clinical ratings, found that the artists too have among other characteristics, a high degree of sensitivity and an ability for playful prelogical thinking. In another study, he found musicians to have sufficient emotional breadth and a tendency to develop interpersonal relationships. The anxiety provoking and frustration inducing situations were tackled as a challenge by the artists.[13]

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[9] M.I. Stein, *Creativity and Culture*. J. Psy., 36, 1953, pp. 311-22.

[10] C.C. Miles and L.S. Wolfe. *Childhood Physical and Mental Health Records of Historical Geniuses. Psychol.* Monog., 47, 1936, pp. 390-400.

[11] G. Szucharewa and S. Ossipowa, *Meterialen zur Erforschung der Kerrelationen Zwischen der Typen der Begabung*. Ltd. Kosistitution, Zsch der Neural U. Psychiate, 100, 1925, pp. 489-526.

[12] M. Ray Chowdhury, *Exploration in the Personality of the Artists.* Musicians and Literature, Proceedings of Indian Science Congress, Part-III, 1961, (Abstr.) p. 572.

Hiriartborde[14] (1964), administered the Cattell's Battery to musical geniuses. Only factor 'C' (emotional unstability) showed the relationship to his musical and rhythmic tests. He concluded from his study that musical ability has high relationship with emotional unstability.

Sharma[15] (1969) conducted a survey of the artists. The personality traits were assessed by administering Thematic Appreception Tests and found that artists and non-artists differed significantly. He concluded that artists have shown more conflicts with their parents than non-artists. They feel rejected by their parents more, and have less affilation with their parents. Artists have less over aggression and more quiet feelings.

Carroll[16] (1930) had pointed out that at all age levels musically bright children or gifted surpass average in intellectual traits. The musically gifted children were found to have better determination power ; they had also shown more of perseverance and common sense. The musically gifted were also found to be more submissive and depressed as compared to those who were non-gifted in music. This study clearly indicated different personality make-up of musically gifted and non-gifted.

McGhee and Lewis[17] (1942) in their study of comparisons of personality characteristics of musically superiors and musically inferiors had very clearly indicated a difference in the

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13. M. Ray Chowdhury, *Studies in Artistic Creativity*. Ravindera Bharti, Calcutta ; 1960.
14. E. Hiriartborde, *Less Aptitudes Rythmioues*. Paris : Dactylosorbonne, 1964.
15. G.C. Sharma, *Personality of Artists*. Indian J. of Applied Psy., 6 (1), 1969, pp. 31-34.
16. H.A. Carroll, *Generalization of Bright and Dull Children*. Tech. Coll. Counter, Educ. No. 439, 1930, p. 54.
17. McGhee and W.D., Lewis, *A Comparison of Certain Personality Characteristics of Musically Superior and Musically Retarted Children*. J. Educl. Res. 1942, pp. 600-610.

personality compositions of the groups under study. They used two measures namely "BPO" and teacher ratings on as many as 70 traits of personality. The significance of this study from psychological point of view was, that personality traits, namely, responsibility, perseverance, moralistictivity, superego strength and pessimistic nature were observed in those who were musically gifted and otherwise obtained in those who were musically inferior. On the other hand, Bentley[18] (1937) had asserted that the musically superiors were above average in super-ego strength and they were usually honest and more conscientious.

Suri et al.[19] (1979) conducted a factorial investigation of musical preference, intelligence, adjustment, introversion and extroversion. The subjects of the study included 200 high school students of Jammu District. Factor Analysis was employed to see the internal picture of factorial model. Two factors were extracted. The first factor had a high loading on adjustment, followed by musical discrimination and introversion. The second factor had a substantial loading of intelligence, musical discrimination and musical preference.

1.4.2. Studies Related to Cognitive Variables

The studies relating to musical ability and cognition have been discussed separately under two heads viz, Musical Ability and Intelligence and Musical Ability and Creativity.

(a) Musical Ability and Intelligence :

Farnsworth[20] (1958) has brought out the relationship of cognition with musical ability. He described the relationship of academic intelligence and music test scores to be slight.

On the other hand, McLeish[21] (1953) who had administered both Wing's and Seashore's Tests of musical ability and observed that musical ability was highly correlated with cognitive factors. It was argued by Schoen[22] (1940) that academic intelligence is an important component of musical ability.

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[18] J.E. Bentley, *Superior Children*. New York : Norton and Co., Inc. 1937.

[19] A. Suri et. al., *Musical Preference in Relation to Discrimination Between Notes and Certain Personality Variables.* Indian Journal of Applied Psychology, Vol. No. 16, No. 1, 1979, pp. 39-43.

[20] P.R. Farnsworth, *The Social Psychology of Music.* The Dryden Press, New York, 1958.

[21] J. McLeish, *In the Fourth Mental Measurements Year Book*. New Brunswick, N.J. Rutgers Univ. Press, 1953.

Bergan[23] (1966) estimated that I.Q. of the musically superior people ranges between 120 to 155. He concluded on the basis of his study that musical giftedness was dependent upon superior intelligence.

Lehman[24] (1952) who studied the musically gifted and musically inferior subjects categorized on the basis of "Kwalwasser—Dykema Music Tests", found that children with high music tests scores had scores high on intelligence tests.

Revesz's[25] (1954), on the other hand, showed that to reach the highest level of musical success one needs an intelligence considerably above that of an average.

Wing[26] (1948) had observed that there was good correspondence between low intelligence scores and low scores on his tests. Edmunds[27] (1960) also obtained similar results, when he found that low intelligence and low musical ability appear to be closely related.

Wing[28] (1955) had further argued that the rapid mental understanding of the music or musical tasks may be regarded as a form of intelligence, although it may not be adequately measured in the intelligence tests which deal with logical reasoning.

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[22] M. Schoen, *The Psychology of Music*. New York : Ronald Press, 1940.

[23] J.R. Bergan, *Factors Affecting Pitch Discrimination*. Bull. Council Res. Mus. Ed., No. 8, 1966, pp. 15-21.

[24] C.F. Lehman, *A Study of Musically Superior and Inferior Subjects as selected by the Kwalwasser Dykema Music Tests*. J. Educ. Res., 45, 1952, pp. 517-22,

[25] G. Revesz, *Introduction to the Psychology of Music*. Norman Univ. of Qkl. Press, 1954.

[26] H.D. Wing, *Tests of Musical Ability and Appreciation*. Brit. Psyl. Monogr. Suppl. No. 27, 1948, pp. 48.

[27] C.B. Edmunds, *Musical Ability, Intelligence & Attainment of Secondary Modern and E.S.N. Children*. Thesis, Leeds Univ. 1960.

[28] Wing, Loc. Cit.

In another study, Franklin[29] (1956) found that higher the order of musical function higher the intelligence will be. He further indicated that for lower order of musical superiority, intelligence might not be a supporting function but at the higher creative level, the intelligence must be playing its part.

Lasker[30] (1971) generalised through the series of investigations that intellectually superior students could easily master the basic concepts of musical performance and were likely to excel in music.

Mursell[31] (1937) theoretically hypothesized that cognitive abilities also included musical talent, thereby, suggesting that musical ability is a special ability within the cognitive domain.

(b) Musical Ability and Creativity:

A study in which creativity is taken in terms of original production and creative imagination in musical artists was reported by Seashore[32] (1919). He found that creative imagination is presumed to play a part not only in the composition of new works but also in the interpretation of existing works as well.

Seashore[33] (1919), in another study, found that the musicians are superior to the general population in manual skill, energy output or creative imagination and that the scores on measures of these factors correlated positively with musical excellence.

Walter[34] (1961) has discussed the "Psychological Phenomena" that must be familiar to every gifted and creative musician. According to him "Creative Talent is closely connected with the interpretative aids of performance".

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[29] E. Franklin, *Tonality as a Basis for the Study of Musical Talent.* Coteberg : Gumperts Forlag, 1956.

[30] H. Lasker. *Teaching Creative Music in Secondary Schools.* {Boston. Allyn & Bacon, Inc. 1971.

[31] J.L. Mursell, *The Psychology of Music.* New York : Norton, 1937.

[32] C.E. Seashore, *The Psychology of Musical Talent.* New York: Silver Burdett, 1919.

[33] *Ibid.*

[34] Walter, *op. cit.*, p. 18.

Taylor[35] (1959), who compared the musical composition and creativity, has concluded that musical composition and creativity are closely related variables. He has further argued that more creative person is able to produce better musical composition.

Franklin[36] (1956) factor analysed a battery of tests (including several of the musical tests prepared by Seashore and Wing, tests of Intelligence and Vocabulary). From the study it emerged that musical ability has two aspects, namely, Mechanical Acoustic and Creative Musical Talent.

Revesz[37] (1954), while dealing with the psychology of music, has clearly clarified the different kinds of musical giftedness. He was of the view that the ability to compose ; to improve upon that ; to transpose and the keen memory were closely related with the musicality chord at the one hand and the art of reproducing music coupled with the reproductive, interpretative talent on the other. Revesz has also differentiated between the aptitudes (which are concerned with the fitness of the performance) and the capacities which call for above average par excellence. He was of the opinion that musical talent comprised two independent constructs, namely, Creative and interpretative reproductive. The nomeclature of the author also throws light on the close and intimate relationship of creativity and musical ability.

An interesting attempt made by Roderick[38] (1965) to find out the Minnesota tests of creative thinking showed particular connection with musical ability. He tested two groups whose main subject was music. One whose speciality was art and one randomly selected college group. There was no correlation at all between the Drake Memory Test and Creative

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35. I.A. Taylor, *The Nature of the Creative Process*. In Smith, P. (ed.) Creativity ; An Examination of the Creative Process, New York : Hastings House, 1959.

36. Franklin, *loc. cit.*

37. Revesz, *Loc. Cit.*

38. J.L. Roderick, *An Investigation of Selected Factors of the Creative Thinking Ability of Music Majors in a Teacher Training Programme*. Ph. D. Thesis. Music, Univ. Illinoas, 1965.

Ability and no significant difference between the music students and those studying other subjects. After attending a musical course, both music groups improved in fluency of response to a hypothetical music, educational problem but not in flexibility of responses.

Bessom et al.[39] (1974) have reported that the students who have capacity for grasping the intellectual aspects of music will ordinarily do well in music theory or literature classes. Such students excel in performance and creativity. Very often these are the students who do well in many other areas of the curriculum. There seems to be a strong correlation between high intelligence and musical ability.

A study of the related literature which was attempted with a view to get the information regarding the theoretical framework, revealed that no study has up-to-date been attempted wherein the variables and their interaction was studied. Nevertheless the studies which were conducted taking one variable or the other were mostly done in early 40's. The results obtained by the researchers at that time cannot be accepted on the grounds, namely, (a) These studies were conducted elsewhere and hence may not be valid in the Indian social context, (b) The sophistication of research design did not exist in those days and hence, the results of those days might suffer from crudity and simplicity in generalizations.

There arises, therefore, a need to replicate the studies and to validate the results in present Indian Social Context.

The researcher has made efforts to explore the relationship by undertaking a comparative study of psychological traits, divergent and convergent abilities at the school and college level in this investigation.

The study makes many forward thrusts and contributes to the advancement of knowledge in this unexplored and virgin field of research.

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[39] M.E. Bessom, A.M. Tatarunis and S.L. Forcucci, *Teaching Music in Today's Secondary Schools A Creative Approach to Contemporary Music Education.* Holt, Rinehart and Winston, Inc., New York 1974.

1·5. Delimitations

The present study, being exploratory in nature, has the following delimitations :

1. The results of the study will be limited to the study of relationship among various variables, made on a sample of 476 girls at school level and 450 girls at college level.
2. The girls studied belonged to Higher Secondary and T.D.C. classes only.
3. Identification of musically gifted girls was limited to pooled achievement marks in music of two academic years and the performance on the standardized test in music.
4. The construction of musical achievement tests were limited to paper-pencil type.
5. The creativity of the pupils was limited only to those traits, which are measured by Wallach and Kogan test, adapted by Parmesh in Hindi version.
6. The personality traits included in the Jr. Sr. High School Personality Questionnaire (HSPQ—14 PF) of Cattell and Halla Beloff (adapted in Hindi by Kapoor and Mehrotra) were only studied.
7. Adjustment was limited to only those fields, the measurement of which was possible through Saxena Adjustment Inventory.

CHAPTER II

Design of the Study

2.1 Design of the Study

The present study is basically concerned with ascertaining the personality traits and other psychological measures of musically gifted and non-gifted girls at school and college level. In this study, the experimental method has been employed. The purpose of experimentation is to formulate a functional relationship among phenomena under controlled conditions.

The experimental method follows a problem-solving approach. It is designed in a way to control the other relevant variables except the one which is manipulated or changed with a view to determine the measure of the effect of its operation.

In the present study, the dependence and independence of the variables has been taken hypothesis-wise. The pooled examination marks and scores on achievement tests have been taken as marker or classification measures.

2.2 Procedure of the Study

The study was conducted in four phases. The first phase was concerned with the preparation and construction of the achievement tests in music both for school and college level.

The preparation of Achievement tests called for a very careful scrutiny of the available tests in the field of music and also the contents of the syllabi of the school and college classes. Apart from this, experienced teachers and experts in the field of music were also consulted. As many as 135 items were prepared for the achievement test at school level and 172 test items at the college level. The preliminary drafts were administered and items analysed on the basis of Difficulty Value and Discrimination Indices. (Detailed procedure is given in the Chapter III).

After deleting the invalid items, only 51 items at school level and 72 items at college level were retained. The final tests were administered to representative sample and split-half reliabilities for both the tests were computed. Two types of validities, namely, content validity and criterion-related validity were worked out.

In second phase, a decision had to be taken regarding the method of identification of gifted and non-gifted girls in music. Since the study was exploratory in nature, therefore, it was thought appropriate that gifted and non-gifted groups will be dichtomized on the basis of Q_3 and Q_1 on musical achievement tests scores. Apart from it, the identification of the giftedness was also substantiated with the pooled examination marks in music (theory and practical) for the two examinations held during the session at the school and the college level. By taking the aforesaid criteria, 81 gifted and 77 non-gifted girls were selected at the school level, whereas at the college level, 84 gifted girls and 75 non-gifted girls in music were selected. For the sake of convenience an equal number of cases were taken at all the four levels. The rest of the cases were rejected randomly and finally 75 cases in each category were retained.

In third phase, the psychological tests viz. Jr. Sr. H.S.P.Q. (Hindi Version adopted by Kapoor and Mehrotra) by R.B. Cattell, adopted Hindi Version of Creativity Test by Paramesh (original authors Wallach and Kogan), Saxena's Adjustment Inventory and Intelligence Tests by Chowdhury were administered personally to the gifted and non-gifted girls, both at school and college level.

In the fourth phase, the data collected in the third phase were scored personally with the help of scoring keys. The master lists were prepared and the necessary designs were formulated for the computerization of the data. The obtained results were suitably interpreted and discussed.

2.3 Sampling

The population in the present investigation consisted of students from school level and college level belonging to Jammu region, Kashmir Valley and areas adjoining Jammu region (from Punjab).

The investigator had to utilize different sampling techniques at different stages of the investigation. For the preparation of the preliminary drafts of the Achievement Tests in Music, the investigator selected 25 experienced music teachers and experts. The sampling technique utilized at this stage was purposive.

The pilot study of the preliminary drafts was done on 25 students at the school level and 25 students at the college level. The students were taken in clusters i.e. one section from the school and one section from the college.

The preliminary drafts were administered to a randomly selected population of school and college. 810 students (400 from school and 410 from college) included those who had opted music as one of the subjects, were selected from some selected institutions. The final musical achievement tests were administered to 1000 students, comprising of 500 students each at school and college level, who were selected randomly. It may be mentioned that complete data for 476 girls at school and 450 at college level could be retained after deleting the incomplete cases.

The data for the psychological measures were selected from the controlled population of musically gifted and non-gifted girls both at school and college levels. Therefore, there is no need of sampling at this stage. A summary of the sampling out-line is given in the Table 2.1.

Table 2.1

Sampling in the Present Study Keeping in view the Different Stages

Stages	*Description*	*Sample*	*Sampling Techique*
1.	Preparing the preliminary drafts of the Achievement Tests in Music	25 Experts	Purposive Sampling
2.	Pilot Study	50 Girls	Cluster Sampling
3.	Item Analysis at School Level (Achievement Test).	400 Girls	Random Sampling
4.	Item Analysis at College Level (Achievement Test).	410 Girls	Random Sampling
5.	Administration of Achievement Test at School Level	500 Girls	Random Sampling
6.	Administration of Achievement Test at College Level	500 Girls	Random Sampling
7.	Data for H.S.P.Q.	150 gifted & 150 non-gifted girls	Identified on the basis of Quartile Deviation
8.	Data for Intelligence	150 gifted & 150 non-gifted girls	—do—
9.	Data for Creativity	150 gifted & 150 non-gifted girls	—do—
10.	Data for Adjustment	150 gifted & 150 non-gifted girls	—do—

2.4 Description of the Tools

The following tools were used for the collection of necessary data.

2.4.1 Achievement Tests in Music (School and College Level)

These tests were prepared personally by the investigator. The musical achievement test at school level contains 51 items whereas the achievement tests at college level includes 72 items. Both the tests are paper and pencil type. These tests are in Hindi language. The items of these tests are of multiple choice type in which the examinee had to select the correct response from four answers given for each item.

2.4.2 Aligarh Verbal Intelligence Test

For the measurement of intelligence of musically gifted and non-gifted girls both at school and college levels the Aligarh Verbal Intelligence Test (V.I.T.) was utilized. The Aligarh V.I.T. aims to measure the verbal intelligence of an individual. It is an individual as well as a group test. It was constructed and standardized by late K. Ray Chowdhury. It is a 55 minutes battery which includes 8 sub-tests namely, (1) Classification (2) Anologies (3) Synonyms (4) Extra Number Test (5) Completion (6) Paragraph (7) Best Reasons (8) Simple Reasoning.

2.4.3 Jr. Sr. High School Personality Questionnaire

An adapted Hindi version of H.S.P.Q. by Kapoor and Mehrotra was utilized to assess the personality traits of both gifted and non-giften girls.

The H.S.P.Q, measures fourteen distinct dimensions or traits of personality which has been found by psychologists to come near to covering the total personality. This test is an objectively scorable tests.

2.4.4 Vyktaka—Parkh Prashnavali

From the measurement of adjustment, the Saxena's adjustment inventory was used. This inventory was prepared and standardized by Saxena. It is a paper-pencil type and is intended for use at the school, college and university stages from the age range of 11+ to adulthood. The inventory gives five separate measures of adjustment, viz:

(i) Element—A	...	Home Adjustment
(ii) Element—B	...	Health Adjustment
(iii) Element—C	...	School/College Adjustment
(iv) Element—D	...	Emotional Adjustment
(v) Element—E	...	Social Adjustment

The inventory contains 90 items which are to be answered on three point-scale (yes, no, doubtful). The administration of the inventory takes generally 40 to 45 minutes.

2.4.5 Creativity Test

For the measurement of Creativity, adapted version of Wallach and Kogan battery of creativity by Paramesh[1] (1972) was used which is based on an associative conception of creativity developed by Mednick[2] (1962). The tests were designed so that the number of associational responses that a person could generate under various circumstances and the relative uniqueness of these responses could be observed.

The Wallach-Kogan battery of creativity tests consisted of three verbal and two visual sub-tests. The first verbal sub-test consisted of items eliciting possible instances of a class concept for example, to give the names of all the round things one could think of. This test was named as 'Instances'. The second sub-test was called 'Alternate Uses' which includes items eliciting the possible uses of a specified object and the third test was called 'Similarities' which consisted of items eliciting similarities between two verbally specified objects. The two visual sub-tests consisted of visual designs namely 'Pattern Meanings' and line drawing called 'Line Meanings' which served as stimuli for the subject to generate the possible meanings or interpretations of the patterns or the lines.

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[1] C.R. Paramesh, *Adaptation of Wallach-Kogan Instruments of Creativity*. Unpublished Ph.D. Thesis, Univ. of Madras, 1972.

[2] S.A. Mednick, *The Associative Basis for Creative Process.* Review, 1962, p. 69.

2.5 Identification Procedure

Since the main study was based on gifted and non-gifted girls in music, therefore, a great care had to be taken in selecting contrasted groups. In the present investigation two criteria namely, index of achievement on Achievement Tests and pooled examination marks in music were utilized. The students at both levels and in both criteria were classified on the basis of Quartile Deviation i.e., students who were falling above Q_3 in both the cases were labelled as 'Musically Gifted' and those who were scoring below Q_1 were grouped as 'Musically Non-Gifted'. The details of the classification procedure are given in Table 2.2.

Table 2.2

Index of Achievement on Achievement Test and Index of Pooled Examination Marks in Music

Levels	*Categories*	*Achievement Index (In Musical Achievement Test)*	*Index of Achievement (For Pooled Examination Marks in Music).*
SCHOOL	Musically Gifted	$Q_3=35.98=36.00$	$Q_3=69.61=70.00$
	Musically non-gifted	$Q_1=20.06=20.00$	$Q_1=46.70=47.00$
COLLEGE	Musically Gifted	$Q_3=45.40=45.00$	$Q_3=64.30=64.00$
	Musically non-gifted	$Q_1=23.50=24.00$	$Q_1=39.70=40.00$

2.6 Techniques used for Analysis of Data

1. Measures of Central Tendency and Dispersion

Means, standard deviations and quartile deviations were worked out to study the nature of sample distribution in relation to intelligence tests, personality questionnaire, adjustment inventory, creativity tests and academic achievement.

2. Reliability and Validity Coefficients

Pearson's method of correlation was used for establishing the reliability and validity of the musical achievement tests at school and college level and also for the reliability of creativity tests.

3. Critical Ratio

Significance of difference between means, for comparative study of the psychological measures of gifted and non-gifted girls, were calculated to see the significance level of the difference.

4. Analysis of Variance

Multifactorial design was employed to study the interactional effect of the variables under study.

CHAPTER III

Experimental Validation of Tests

Musical ability can be assessed in a variety of ways. For a person who is proficient in some phase of music, achievement tests are most appropriate for its measurement. These may measure verbal knowledge, appreciation for music, non-verbal musical skills etc. Achievement tests in music, oriented to measure verbal knowledge are generally geared to school performance and attempt to measure how well certain musical abilities have been taught. Although these tests aim to test potential ability in music, they typically possess high reliability.

Musical ability is usually broken into its various components and tests are constructed in each of these component areas. Musical aptitude tests are in fact measures of achievement, although these aim to test informal learning and potential ability rather than the effects of formal training.[1]

The earliest published tests of verbal knowledge are the Beach[2] (1939) Standardized Music Tests, Musical Achievement Test developed by Gildersleeve and Soper[3] (1938). The Torgerson Pahnestock[4] (1940) Music test, Kwalwasser

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[1] Shuter, *Loc. Cit.*

[2] F.A. Beach, *Beach Music Test*. Emporia Bureau of Educational Measurements; Kansans State Teachers College, 1939.

[3] Gildersleeve and Soper, Quoted in Seashore's *Psychology of Music*. New York: McGraw Hill, 1938.

[4] T.L. Torgerson and E. Fahnestock, *Torgerson Fahnestock Music Test*. Bloomington, III, Public School Publ., 1940.

Ruch[5] (1924) Test of Musical Achievement. The Macaulay's[6] musical Aptitude Test. The Allen and Butter-field[7] Providence Inventory Test in Music, Musical Achievement by Kotick and Torgerson[8] (1950) and Alifers Music Achievement Test[9] (1954).

It is true that all the aforesaid achievement tests in music are constructed and standardized in foreign social settings and cannot be used in the Indian Social Context before proper adaptation, yet these tests provide a theoretical framework to the investigator. Due to some inherent limitations and due to the non-availability of ready-made tests, the investigator has constructed her own achievement tests in music for the identification of musically gifted girls.

The investigator constructed the following achievement tests, for measuring the attainment in music for school and college going girls.

1. Musical Achievement Test at School Level.
2. Musical Achievement Test at College Level.

The steps followed for constructing these tests were :

3.1 Planning the Tests

Test construction is not an incidental activity. It involves planning and a definite procedure. The test constructor who plunges directly into item writing is likely to produce a lop-sided test. A test constructed without a blue-print is likely to be over loaded with relatively transitory and less important material.

For drawing up test specifications, the investigator studied two types of literature critically, (i) relating to test construction ; (ii) syllabi ; and (iii) school/university question papers in music.

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[5] J. Kwalwasser and G. Ruch, *Kwalwasser Ruch Tests of Musical Accomplishment*. Lowa City: Bureau of Ed. Res. and Serv., 1924.

[6] A.S. Macaulay, *Musical Aptitude Test*. Los Angles : Calif., Test Bureau.

[7] R.D. Allen and W.H. Butterfield, *Providence Inventory Test in Music*. Yonkers, New York : World Book.

[8] M.L. Kotick and T.L. Torgerson, *Diagnostic Test of Achievement in Music*. Los Angles: Calif, Test Bureau, 1950, pp. 15-16.

[9] J. Alifers, *Alifers Music Achievement Test*. Minneapolis, Univ. of Minnesota Press, 1954, p. 18.

A study of syllabi and question papers in the area of music helped the researcher to decide the weightage to be given to each independent topic in the syllabus. The investigator thus prepared different blue-prints for both the tests. These blue-prints were prepared by taking into consideration the relative importance of the content and also the amount of time spent on instruction in each category by the teachers. The tests were constructed on the whole course. The principle of content coverage was strictly adhered to in the preparation of these tests. The items were of multiple-choice in both the achievement tests, because the students often find multiple-choice questions less ambiguous than the completion of true-false items.

The multiple-choice items in the tests were composed of four possible responses or options out of which only one was the correct response. The incorrect responses were distractors or foils.

The researcher saw to it that the number of items in the different areas in the final test tallied fairly with the planned quota. The blue-prints are indicated in Tables 3.1 and 3.2.

Table 3.1

Musical Components for Musical Achievement Test (School Level)

S. No.	*Content*	*Weightage in percentage*	*No. of items proposed for the final draft*
(1)	(2)	(3)	(4)
1.	Pitch Differences	3.01	2
2.	Note Values and Note discrimination	13.53	9
3.	Time Error	6.77	3
4.	Knowledge of Musical Terms and Symbols	8.27	5

(1)	(2)	(3)	(4)
5.	Naming Notes	5.26	4
6.	Ragas Recognition	15.04	10
7.	Time Discrimination	9.02	2
8.	Rhythm Memory	2.26	1
9.	Famous Names in Indian Music	4.51	3
10.	Theory of Indian Music	10.53	4
11.	History of Indian Music	2 26	1
12.	Music Terms	9.02	4
13.	Excellent Musical Memory	3.76	1
14.	Knowledge of Symbols	6.77	2

Table 3.2

Musical Components for Musical Achievement Test (College level)

S. No.	*Content*	*Weightage in percentage*	*No. of items proposed for the final draft*
1.	Pitch Differences	3.55	3
2.	Note Values and Note Discrimination	8.28	3
3.	Time Error	4.73	8
4.	Knowledge of Musical Terms and Symbols	4.73	2
5.	Naming Notes	5.92	6
6.	Ragas Recognition	13.61	6
7.	Time Discrimination	9.47	5
8.	Rhythm Memory	3.55	2
9.	Famous Names in Indian Music	7.10	8
10.	Theory of Indian Music	10.65	9
11.	History of Indian Music	8.88	6
12.	Music Terms	7.69	2
13.	Excellent Musical Memory	8.28	11
14.	Knowledge of Symbols	3.55	1

3·2. Administration of the Tests

(i) *Pilot Study*. Before the actual tryout, it was thought worthwhile to conduct a pilot study to remove the ambiguities in the items or to weed out the irrelevant items. In both the tests, items with wide range of difficulty were retained. Suitable instructions with examples were framed, Franch and Candid's opinions about the typed drafts were sought from the knowledgeable school and college teachers of music. As a sequel to it, false assumption, slips and over sights were corrected. The items in the tests were arranged in the descending order of difficulty based on the observations during the course of preliminary tryout.

To ascertain the suitability of the items, fifty cyclostyled copies of each test were administered to the school and college going students and the answers were checked. A few further modifications were incorporated in the light of pilot study. The cyclostyled tests were administered to a sample selected for tryout testing.

(ii) *Sample for Tryout Testing*. For two different achievement tests, six schools and four colleges from Jammu and Srinagar Districts and few places of Punjab, were selected, at random. Approximately one-third students were taken from each of them in clusters of class sections chosen at random. As the researcher needed 370 scripts in each test for the item analysis, she took 400 and 410 scripts from schools and colleges respectively to keep enough margin for discarding the spoilt ones.

There was no time limit for taking the tryout tests ; as it is essential at the tryout stage to get data for each item. The time limit, therefore, was set quite generously to allow all the students to answer every item in the tests.

The scoring was done with the help of scoring keys already prepared by the investigator for each test. Each correct answer was given a weightage of one mark, while the incorrect response was given a zero mark.

3·3. Item Analysis

After all the answer scripts were scored, the next step was to select valid items to be included in the final tests. To get valid items the technique of item analysis was used. The item analysis was done on the basis of Difficulty Value and Discrimination Index, as suggested by Davis[10] (1962). The former is in terms of percentage of individuals who are able to respond correctly on the item.

In the present investigation the item analysis was done by taking extreme groups of achievers, after arranging the answer scripts in order of merit in achievement test at each level. The two groups had 27% cases in each group of the high achievers and low achievers. The two groups thus obtained were 27% in the upper group and 27% in the lower group. The total number of cases in each group came out to be 100. The total number of scripts taken for item analysis was 370.[11]

The average of the proportion of the correct responses on each item in the two contrasted groups was taken to be an estimate of the difficulty value of that particular item.[12]

The formula applied for calculating difficulty value (dv) of each item was :

$$dv = \frac{PU+PL}{2}$$

Where dv = Difficulty Values of the item.

PU = Proportion of Correct responses to the item from the Upper Group.

PL = Proportion of the Correct Responses to the item from the lower Group.

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[10] F.B. Davis, *Item Analysis in Relation to Educational and Psychological Testing*. Psychological Bulletin, 1962, p. 94.

[11] T.L. Kelley, *The Selection of Upper and Lower Group for the Validation of Test Items*. J. of Edul, Psy., Vol. 4, 1939, p. 18-24.

[12] J.P. Guilford, *Psychometric Methods*. McGraw Hill Co., International Student Edition, New York : 1954, p. 422.

3.3.1. Internal Consistency

The relationship between the total scores derived from a test and item scores are referred to as 'internal consistency' or 'discrimination index' of an item. The internal consistency or discrimination index of each item was found by reading the biserial coefficient of correlation between the item and the total score from the J.C. Flanagan's abac.[13] Flanagan's abac was designed for use when the middle 46% of the examinees on total score have been eliminated and each tail contains 27%. The proportion, passing the item in the upper criterion group was read from the ordinate and the proportion passing the item in the lower criterion group from the abscissa, and the value of coefficient 'rb' was read at the inter-section of the perpendiculars. When the difficulty values and the internal consistency discrimination indices of each item had been determined in the way discussed above (for both the tests) lists were drawn showing these values in Tables 4.5 and 4.6.

Table 4.5

Difficulty Values in Proportion and Internal Consistency Discrimination Indices of the Items for Musical Achievement Test at School Level

Item No.	*Difficulty value (dv)*	*Discrimination Indices (r_{bis})*
(1)	(2)	(3)
1.	79	.50
2.	97	.20
3.	94	—.30
4.	87	.20
5.	74	.49
6.	93	.42
7.	72	.49
8.*	80	.72
9.	7	—.10

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[13] *Ibid.*, p. 428.

Note :—The Item selected for the final test have been marked with an asterisk (*).

(1)	(2)	(3)
10.	3	.10
11.	91	.51
12.	44	.25
13.	71	.26
14.	5	.25
15.	32	.10
16.	78	.45
17.	72	.45
18.*	68	.58
19.	81	.60
20.	64	.19
21.*	53	.45
22.	45	.29
23.	69	.48
24.*	46	.48
25.*	56	.72
26.	16	.20
27.	13	.14
28.	87	.25
29.	80	.72
30.	30	.28
31.	89	.50
32.*	33	.42
33.	79	.76
34.	77	.76
35.*	64	.40
36.	14	—.07
37.*	43	.30
38.	82	.63
39.*	61	.60
40.	14	.25
41.	77	.55
42.*	63	.48
43.	76	.29
44.*	60	.75
45.*	70	.50
46.*	58	.72

(1)	(2)	(3)
47.	85	.39
48.	88	.52
49.*	61	.56
50.	49	.27
51.*	51	.38
52.	77	.53
53.	85	.45
54.*	65	.55
55.	90	.28
56.	76	.51
57.	78	.52
58.	80	.53
59.	76	.57
60.	20	.03
61.*	58	.52
62.*	70	.53
63.	33	.08
64.	73	.28
65.*	67	.58
66.*	65	.59
67.	71	.72
68.*	60	.61
69.	76	.58
70.	60	.29
71.*	60	.63
72.	75	.73
73.*	55	.65
74.*	67	.44
75.*	65	.73
76.*	56	.55
77.	45	.24
78.*	43	.47
79.	52	.18
80.*	62	.54
81.	24	.50
82.	84	.47
83.	86	.45

(1)	(2)	(3)
84.	47	.23
85.*	48	.55
86.	84	.65
87.	77	.53
88.	89	.28
89.	91	.53
90.	78	.28
91.	92	.55
92.	90	.54
93.	81	.25
94.	76	.52
95.*	66	.55
96.	75	.73
97.*	69	.53
98.	80	.45
99.	88	.50
100.	81	.64
101.	83	.65
102.	77	.78
103.*	66	.46
104.	46	.20
105.	62	.08
106.*	64	.40
107.*	43	.43
108.*	45	.48
109.*	40	.51
110.*	43	.53
111.	12	.05
112.	77	.72
113.*	66	.43
114.*	66	.54
115.*	64	.72
116.*	69	.42
117.	68	.18
118.*	65	.45
119.	65	.26
120.*	68	.50

(1)	(2)	(3)
121.*	64	.73
122.*	69	.77
123.*	63	.35
124.*	45	.39
125.*	67	.72
126.	80	.71
127.*	61	.64
128.	48	.29
129.*	53	.58
130.*	63	.60
131.	47	.12
132.	68	.18
133.	73	.18

Table 4.5

Difficulty Values in Proportion and Internal Consistency Discrimination Indices of the Items for Musical Achievement Test at College Level.

Item No.	*Difficulty Value (dv)*	*Discrimination Indices (r bis)*
(1)	(2)	(3)
1.	100	.10
2.*	58	.45
3.	73	.15
4.	54	.22
5.*	70	.76
6.	65	.29
7.	86	.30
8.	89	.24
9.	76	.60
10.	17	—.10
11.	83	.28

Note :—The Item selected for the final test have been marked with an asterisk (*).

(1)	(2)	(3)
12.	9	—.10
13.*	54	.56
14.	92	.29
15.*	48	.43
16.*	61	.45
17.	91	.40
18.*	68	.45
19.	68	.29
20.	86	.29
21.	21	.10
22.	78	.56
23.	85	.30
24.*	68	.72
25.	78	.50
26.*	52	.51
27.	29	.20
28.	5	—.30
29.	78	.22
30.	91	.50
31.	72	.40
32.	7	—.07
33.*	70	.72
34.*	42	.72
35.	80	.49
36.*	55	.35
37.*	53	.42
38.*	53	.52
39.	78	.72
40.	84	.30
41.	72	.56
42.*	45	.50
43.*	55	.60
44.	72	.19
45.	22	.10
46.*	48	.59
47.*	44	.40
48.	40	.16

(1)	(2)	(3)
49.	86	.28
50.	85	.39
51.*	64	.65
52.	80	.42
53.	55	.10
54.	86	.49
55.	93	.30
56.*	58	.44
57.*	54	.49
58.*	46	.39
59.	77	.72
60.*	67	.44
61.*	64	.48
62.	19	.10
63.*	64	.54
64.*	61	.42
65.*	68	.50
66.*	58	.49
67.	89	.53
68.	84	.63
69.	81	.73
70.	86	.48
71.	88	.30
72.	90	.22
73.*	50	.50
74.	77	.40
75.*	42	.48
76.	36	.22
77.	47	.10
78.*	70	.58
79.	81	.73
80.*	56	.40
81.*	51	.42
82.*	61	.50
83.	76	.58
84.*	40	.44
85.	88	.37

(1)	(2)	(3)
86.	89	.60
87.	88	.60
88.	17	.28
89.*	58	.48
90.	75	.59
91.	71	.51
92.	76	.38
93.	77	.71
94.*	69	.50
95.	13	.12
96.	39	.18
97.*	56	.32
98.*	50	.43
99.	74	.71
100.	76	.58
101.	42	—.08
102.	84	.65
103.*	68	.58
104.	74	.75
105.	26	—.10
106.	79	.76
107.	41	.08
108.*	64	.83
109.	72	.78
110.*	62	.71
111.	16	—.08
112.*	60	.54
113.*	52	.45
114.	73	.78
115.	26	—.10
116.	71	.53
117.	53	.04
118.	25	.28
119.	30	.49
120,*	31	.35
121.	78	.78
122.	35	.37

(1)	(2)	(3)
123.*	37	.50
124.*	35	.35
125.	76	.77
126.	80	.76
127.*	54	.52
128.	24	.28
129.*	34	.58
130.	28	.45
131.	14	.29
132.	7	.02
133.*	48	.71
134.*	50	.58
135.*	62	.76
136.*	55	.70
137.*	56	.56
138.*	66	.71
139.*	66	.60
140.*	57	.30
141.	73	.75
142.*	67	.76
143.	43	.04
144.*	38	.73
145.	71	.75
146.*	66	.64
147.*	31	.55
148.	8	.12
149.	20	.03
150.	29	.54
151.*	65	.70
152.	19	.51
153.*	44	.49
154.*	54	.64
155.*	43	.73
156.*	43	.44
157.*	42	.42
158.*	37	.55
159.	20	.18

(1)	(2)	(3)
160.	9	—.10
161.	27	.56
162.*	54	.63
163.	15	.28
164.*	47	.62
165.*	41	.46
166.	30	.43
167.	23	.23
168.	34	.22
169.*	60	.77

3.3.2. Item Selection for Final Draft

The items for the final tests were selected on the basis of the following criteria :

1. Internal Consistency

With regard to the internal consistency discrimination index on item validity, "As a general rule, items with validity index of 0.20 or more are regarded as satisfactory" (Garrett,[14] 1967). According to Thorndike[15] (1961), "An item with a validity co-efficient as high as 0.25 usually represents an outstandingly valid item". Keeping these in view, the investigator decided to retain only the items having internal consistency of .30 and higher the better.

2. Difficulty Value

The investigator selected most of the items of medium difficulty values. Lindeman[16] (1971) writes "some easy items

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14. H.E. Garrett, *Statistics in Psychology and Education*. Bombay : Vakils, Feffer & Simons Pvt. Ltd. 1967, pp. 367-68.
15. R.L. Thorndike, and E. Hagan, *Measurement and Evaluation in Psychology and Education*. New York : Wiley Eastern Pvt. Ltd. 1961, p. 425.
16. R.H. Lindeman, *Education Measurement*, Bombay : D.B. Taraporevale Sons & Co. Pvt. Ltd., 1971, p. 89.

should be included in a test in order to encourage the students of low ability. Some difficult items should be included to challenge the able students. However, in the interest of constructing a measuring instrument of maximum quality and utility, most items included should be in the middle range of difficulty". Hence, in the present study the items falling between .30 to .70 difficulty values were retained. The items falling above and below this range were consequently dropped.

3.4. Estimation of Reliability

In the present investigation, the reliability was calculated by split-half method. The tests were split into two equal halves by grouping the odd and even items. At the school stage, where only 51 items were found to be valid, item No. 51 was taken on both the sides so as to make the split congruent. Out of the total sample, 238 and 225, students were selected randomly for school and college level respectively by taking every second copy. To calculate the correlation between odd and even scores, the Pearson's Product-moment Formula[17] was used which is as under :

$$r_{xy}=\frac{N\Sigma XY-\Sigma X\Sigma Y}{\sqrt{[N\Sigma X^2-(\Sigma X)^2]\,[N\Sigma Y^2-(\Sigma Y)^2]}}$$

The Spearman-Brown prophecy Formula[18] for computing reability coefficient is as such :

$$r_{tt}=\frac{2r_{oe}}{1+r_{oe}}$$

The Table given below shows the split-half reliability coefficient.

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[17] Garrett, *Op. cit.*, p. 142

[18] *Ibid.*, p. 339

Table 3·3

Reliability of the Musical Achievement Tests

S.No.	*Tests*	*Reliability*
1.	Musical Achievement Test (School Level)	.92
2.	Musical Achievement Test (College Level)	.91

3.5. Estimation of Validity

In the present investigation, the validity of the tests was taken to be granted because these tests were prepared after assigning due weightage to the different proportions of the syllabi in view. This point of view has been supported by Guilford and Lindquist. Guilford[19] (1954).

To substantiate the face validity, an attempt was made to have a quantified measure of validity. For that purpose, criterion related validity was calculated. In the absence of any other standardized measure of criterion, pooled examination marks were taken as criterion separately for 238 and 225 students of school and college respectively. The criterion scores were equated with the scores obtained on musical tests. The validity coefficients obtained are represented in the Table 3·4.

Table 3·4

Validity Coefficient of Musical Achievement Tests

S.No.	*Tests*	*Validity Coefficient*
1.	Musical Achievement Test (School Level).	.68
2.	Musical Achievement Test (College Level).	.81

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[19] Guilford, *Op. cit.*, 1954, p. 399.

CHAPTER IV

Analysing Personality Traits

After the categorization of girls into musically gifted and musically non-gifted groups, the next step was to study the psychological variables which have been necessitated by the design of the study. The study of personality traits in this type of investigation, happens to be the foremost task. Before entering into the analysis, it was important to decide the extent of area to be probed. For that purpose, it was decided that instead of studying the personality traits one by one for each group, it would be more appropriate to compare the personality components in each group. A contrasted group design was framed and critical ratios were considered most suitable to bank upon.

4.1. Results

Critical ratios, based on uncorrelated means, were computed on the lines suggested by Guilford[1] (1973). The obtained 'C.R.' values and their significance thereof, are given in the Tables 4.1 and 4.2 for school and college level respectively. The means on all the personality factors were plotted on a graph-paper for gifted and non-gifted girls separately at school and college level as shown in figures 4.1 and 4.2.

4.2. Interpretation and Discussion of Results

The Table 4.1 reveals that at school level significant differences were observed in 10 personality traits in the two

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[1] J.P. Guilford, *Fundamental Statistics in Psychology and Education.* Fifth Edition, McGraw Hill Koga Kusha Ltd., 1973, pp. 149-52.

Table 4·1

Significance of the Difference Between Musically Gifted and Non-Gifted Girls at School Level on Personality Traits

Trait	*Description of Trait*	*Musically Gifted Girls*			*Musically Non-Gifted Girls*				*'t'*
		Mean	*S.D.*	*S.E.*	*Mean*	*S.D.*	*S.E.*	*SE_{DM}*	*Value*
A.	Reserved Vs. Outgoing	3.15	2.04	.24	5.10	1.82	.21	.32	6.09**
B.	Less Intelligent Vs. More Intelligent	7.23	1.64	.19	4.03	1.40	.16	.26	12.31**
C.	Affected by Feelings Vs. Emotionally Stable	3.29	1.78	.20	5.37	2.04	.24	.32	6.55**
D.	Phlegmatic Vs. Excitable	5.10	1.46	.17	6.54	1.92	.22	.28	5.14**
E.	Obedient Vs. Assertive	4.38	1.54	.18	6.60	2.04	.22	.28	7.93**
F.	Sober Vs. Happy Go-Lucky	4.30	1.34	.15	5.79	1.86	.21	.24	6.21**

(Contd.)

Trait	Description of Trait	Musically Gifted Girls			Musically Non-Gifted Girls			SE_{DM}	't' Value
		Mean	S.D.	S.E.	Mean	S.D.	S.E.		
G.	Expedient Vs. Conscientious	4.19	1.62	.19	3.72	1.76	.20	.28	1.68
H.	Shy Vs. Venture Some	3.75	1.38	.16	5.18	1.70	.20	.26	4.73**
I.	Tough-Minded Vs. Tender Minded	4.62	1.62	.19	5.13	2.16	.25	.32	1.59
J.	Vigorous Vs. Doubting	5.07	1.84	.21	4.94	2.18	.25	.32	.41
D.	Placid Vs. Apprehensive	8.35	1.50	.17	4.48	1.86	.21	.26	14.88**
Q_2	Group Dependent Vs. Self-Sufficient	6.25	1.86	.21	4.38	2.24	.26	.33	5.67**
Q_3	Undisciplined Self-conflict Vs. Controlled	6.17	1.44	.17	3.37	1.78	.21	.26	10.77**
Q_4	Relaxed Vs. Tense	5.90	1.84	.21	6.11	2.02	.23	.30	0.70

**Significant at .01 Level.

Graph Showing Mean Values of Musically Gifted and Non-Gifted Girls (At College Level) on Fourteen Personality Traits

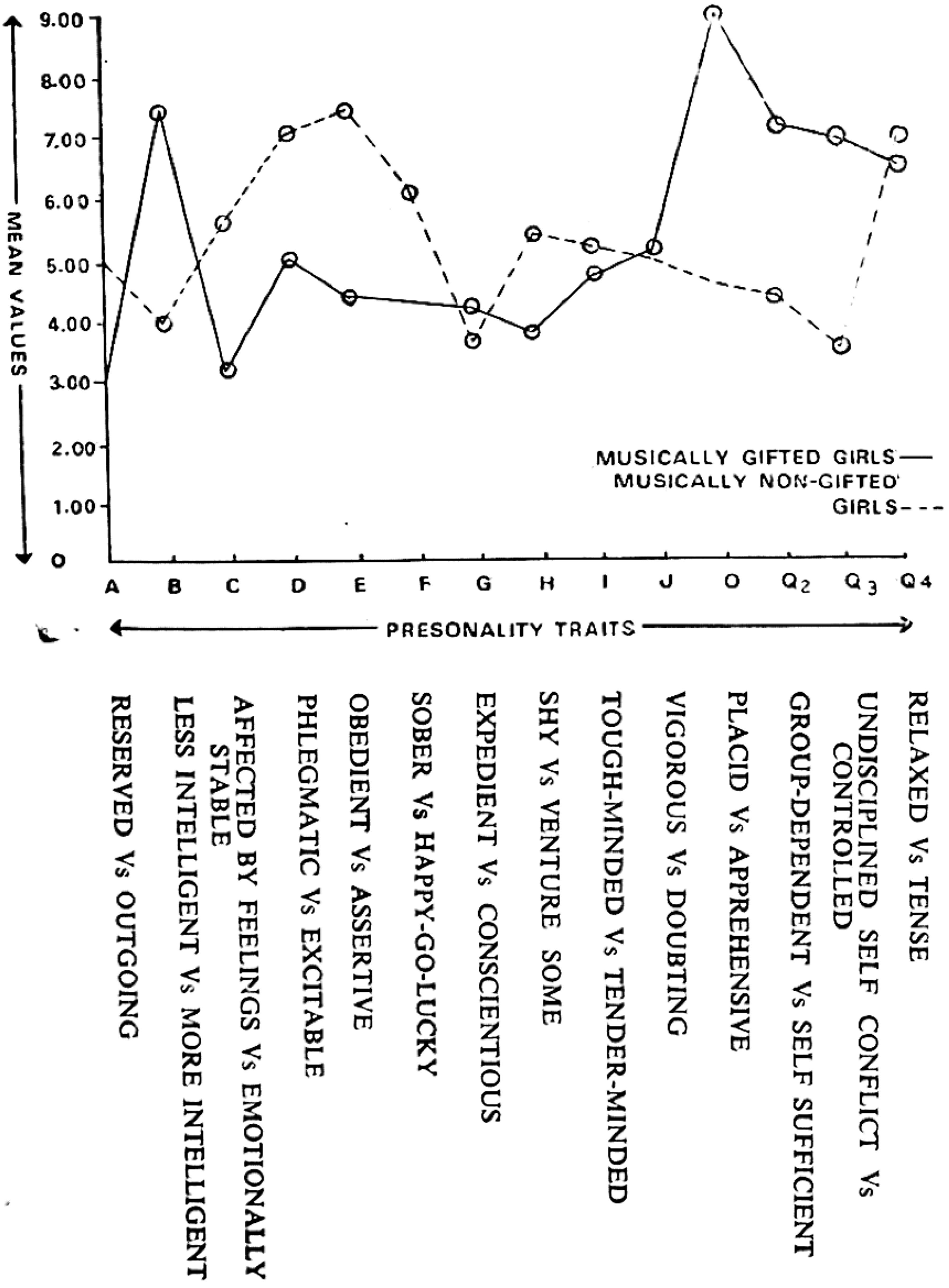


Table 4·2

Significance of the Difference between Musically Gifted and Non-Gifted Girls at College Level on 14 Personality Traits

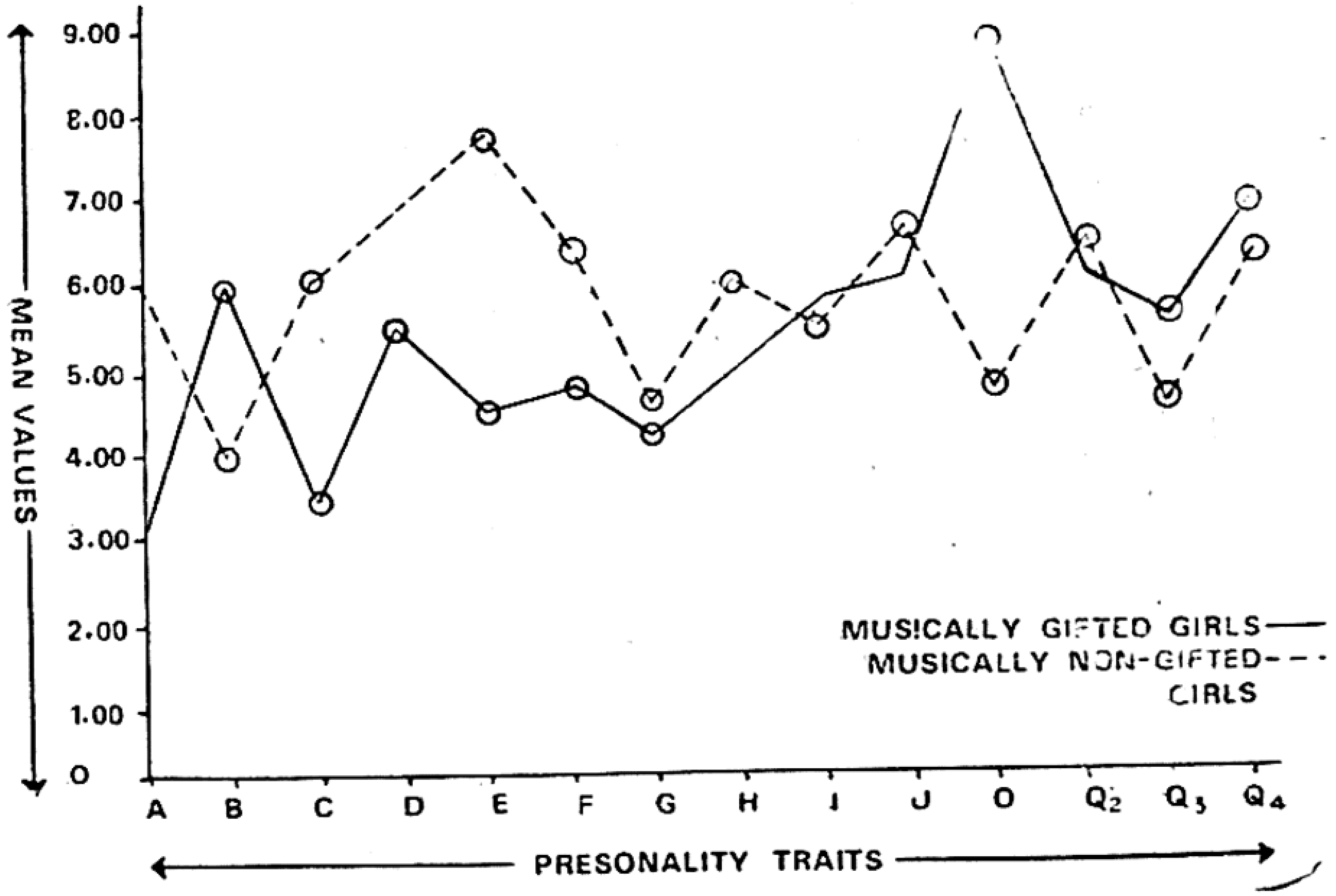
Trait	*Description of Trait*	*Musically Gifted Girls*			*Musically Non-Gifted Girls*			*SE*$_{DM}$	*'t' Value*
		Mean	*S.D.*	*S.E.*	*Mean*	*S.D.*	*S.E.*		
A.	Reserved Vs. Outgoing	3.00	1.90	.22	5.88	1.86	.21	.30	9.60**
B.	Less Intelligent Vs. More Intelligent	5.93	1.18	.14	3.93	1.62	.19	.24	8.33**
C.	Affected by Feelings Vs. Emotionally stable	3.40	1.22	.14	5.77	1.74	.20	.24	9.88**
D.	Phlegmatic Vs. Excitable	5.58	1.40	.16	6.59	1.50	.17	.24	4.21**
E.	Obedient Vs. Assertive	4.52	1.64	.19	7.50	1.66	.19	.28	10.64**
F.	Sober Vs. Happy Co-Lucky	4 46	1.44	.17	5.98	1.90	.22	.28	5.43**
G.	Expedient Vs. Conscientious	3.74	1.88	.22	3.92	1.90	.22	.32	0.56

(Contd.)

Trait	Description of Trait	Musically Gifted Girls			Musically Non-Gifted Girls			SE_{DM}	't' Value
		Mean	S.D.	S.E.	Mean	S.D.	S.E.		
H.	Shy Vs. Venture-Some	4.27	1.26	.15	5.55	1.90	.22	.26	4.92**
I.	Toughminded Vs. Tender-Minded	4.67	2.00	.23	4.44	1.80	.21	.30	0.77
J.	Vigorous Vs. Doubting	4.78	2.20	.25	5.07	2.10	.24	.35	0.83
O.	Placid Vs. Apprehensive	8.09	1.88	.22	3.71	1.12	.13	.26	16.85**
Q_2	Group Dependent Vs. Self-Sufficient	4.54	1.90	.22	4.62	2.22	.26	.35	0.23
Q_3	Undisciplined Self Conflict Vs. Controlled	4.00	1.82	.21	2.99	1.70	.20	.28	3.61**
Q_4	Relaxcd Vs. Tense	6.03	2.16	.25	5.50	1.98	.23	.33	1.61

**Significant at .01 Level.

Graph Showing Mean Values of Musically Gifted and Non-Gifted Girls (At School Level) on Fourteen Personality Traits



RESERVED Vs OUT GOING

LESS INTELLIGENT Vs MORE INTELLIGENT

AFFECTED BY FEELINGS Vs EMOTIONALLY STABLE

PHLEGMATIC Vs EXCITABLE

OBEDIENT Vs ASSERTIVE

SOBER Vs HAPPY-GO-LUCKY

EXPEDIENT Vs CONSCIENTIOUS

SHY Vs VENTURE SOME

TOUGH-MINDED Vs TENDER MINDED

VIGOROUS Vs DOUBTING

PLACID Vs APPREHENSIVE

GROUP-DEPENDENT Vs SELF SUFFICIENT

UNDISCIPLINED SELF CONFLICT Vs CONTROLLED

RELAXED Vs TENSE

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contrasted groups of musically gifted and non-gifted girls. These traits are namely, 'A', 'B', 'C', 'D', 'E', 'F', 'H', 'O', 'Q_2' and 'Q_3' respectively. No significant differences were observed in the personality traits viz, 'G', 'I', 'J', and 'Q_4'.

The Table 4.2 shows results of contrasted group analysis on 14 personality traits. It was found that at college level the two groups differed on the same traits as were found at school level except one, which is 'Q_2'.

The discussion and interpretation of the traits is given below and each trait has been treated separately. To avoid repetition, the interpretation of personality traits of both the levels, has been attempted jointly. Comparative analysis of the personality profiles may gleaned from the discussions given below.

Factor 'A' (Reserved Vs. Outgoing)

The continuum of this factor extends from 'Reserved' at the lower end to 'outgoing' at the higher end. The two groups differed significantly ($P<.01$) for both the contrasted groups. The mean of the gifted girls was found to be lower as compared to the mean of the non-gifted girls. The mean for the gifted girls was 3.15 and 3.00 whereas the mean for the non-gifted girls was 5.10 and 5.88 at school and college level respectively.

The detailed perusal of the manual of the test reveals that the musically gifted girls, as compared to musically non-gifted girls both at school and college levels tended to be more reserved, detached, critical and cool. They tend to be stiff, sceptical and aloof.

The musically non-gifted girls on the other hand, tend to be more warm-hearted, easy-going and participating. They tend to be good natured, emotionally expressive (affectothymic), co-operative, attentive to people, soft-hearted. Further, such girls are likely to associate themselves in groups, less afraid of criticism and are generous in personal relations.

The significant differences with probability beyond .01 level of confidence indicate that musically gifted and musically non-gifted girls can be categorically identified on the basis of the 'Reservedness' and 'Outgoing'.

Similar results were reported by Stein[2] (1953) who has studied the psychological traits of musicologists. He found that musicologists are introverts with cool temperament. The study of Miles and Wolfe[3] (1936) concluded that genius musicians are characterised by the traits of 'preservativeness' and 'aloofness'. Schwadron[4] (1967) and Gross and Seashore[5] (1941) found that musically bright individuals are introverts and lack social intelligence.

The causative evidence regarding the fact that why musically gifted people behave in this manner is not very conclusive, but this can be argued on the basis of theoretical grounds that musically gifted people get lost so much in their music, that they forget about the rest of the world and hence may be called socially non-intelligent people. Similarly, these people are naturally sensitive and hence there is every likelihood that they may not tolerate the interference of others. Consequently they might prefer to remain aloof and reserved.

Factor 'B' (Less Intelligent Vs. More Intelligent)

The factor 'B' extends from 'Less Intelligent' at the lower end of the continuum to 'More Intelligent' at the higher end. It can be seen from the Tables that non-gifted girls at the school and college levels have scored low on this factor whereas the gifted group has scored higher at both levels. Significant differences were observed in the critical ratios between gifted and non-gifted girls ($P<.01$). This shows that on trait 'B', the two contrasted groups differed markedly.

From the manual it can be interpreted that musically gifted girls tend to be quick to grasp ideas, fast learners and are

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2. Stein, *Loc. Cit.*
3. Miles and Wolfe, *Loc. Cit.*
4. A.A. Schwadron, *Aesthetics Dimensions for Music Education.* Washington : D.C. Music Educators National Conference 1967.
5. G. Gross and R.H. Seashore, *Psychological Characteristics of Students and Professional Musical Composors.* J. Appl. Psy., 25, 1941, pp. 159-70.

intelligent. They are bright with abstract thinking and higher mental capacity as compared to non-gifted girls (both at school and college levels).

The non-gifted girls on the other hand, are less intelligent, capable of concrete thinking and lower scholastic mental capacity.

The findings of the present investigation are in line with Lehman[6] (1952) who had studied the musically gifted and musically inferior subjects, and showed that children who had higher scores on Kwalwasser and Dykema Music Tests, also had a high score on intelligence tests.

Revesz[7] (1954) had observed that to attain the highest level of musical excellence one needs an intelligence level considerably more than the average. Wing[8] (1948) had also found that there was good correspondence between musically low achievers and the intelligence test scores. The results of Edmunds[9] (1960) were in line with the results of Wing. Lasker[10] (1971) concluded after a series of investigations that intellectually superior students could easily master the basic concepts of musical performance and were likely to excel in music.

Recently Bennett[11] (1970) concluded that abstract thinking and higher mental ability were observed in children who were higher achievers in music test as well.

From the above discussion it can be inferred that an intelligent person can discriminate music better than the one who is less intelligent. The 'G' role assigned to intelligence by Spearman is clear here—that even the special ability of a musical nature needs a modicum of intelligence to become viable.

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[6] H.C. Lheman, *Intelligence Vs. Physical Peak Performance*. Sci. Month, 61, 1945, pp. 127-37.

[7] Revesz, *Loc. Cit.*

[8] Wing, *Loc. Cit.*

[9] Edmunds, *Loc. Cit.*

[10] Lasker, *Loc. Cit.*

[11] R. Bennett, *A Philosophy of Music Education.* Englewood Cliffs, New Jersey : Prentice Hall, Inc., 1970.

Factor 'C' (Affected by Feelings Vs. Emotionally Stable)

The continuum of factor 'C' extends from 'Affected by Feelings' at the lower end and 'Emotionally Stable' at the higher end. The obtained results show that musically gifted girls have Lower mean both at school and college levels respectively. The non-gifted girls have shown a higher mean in both the groups which differ significantly (P<.01), thereby showing that musically gifted and musically non-gifted girls differ significantly on trait 'C'.

The detailed perusal of the manual indicates that musically gifted girls are emotionally less stable and easily get upset. They tend to be low in frustration, tolerance for unsatisfactory conditions, changeable and plastic. They are the people who avoid necessary reality demands, neurotically fatigued, fretful, easily emotional, annoyed and active in dis-satisfaction, having neurotic symptoms (phobias, sleep disturbances, psychosomatic complaints etc.). On the other hand, musically non-gifted girls appear to be emotionally stable, reality facing type with higher ego strength. They are emotionally mature.

Above findings under factor 'C' are supported by Hiriartborde[12] (1964), who administered the Cattell's Battery to musical geniuses. He concluded from his study that musical ability has high relationship with emotional unstability. The exploratory study conducted by Miles and Wolfe[13] (1936) has also discovered that genius musicians were emotionally very unstable, dissatisfied and possessing neurotic symptoms. Again, it has been noted by Chowdhury[14] (1961) who found, by using projective techniques and clinical ratings, that the artists have a high degree of sensitivity. Stein[15] (1953) has also found the similar type of results and concluded that musicologists are emotionally unstable and they get easily upset. The above results can be justified on the ground that

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12. E. Hiriartborde, *The Aptitude Rythmiques*. Faris Dactyic-Sorbonne, 1964, p. 12.
13. Miles and Wolfe, *Loc. Cit.*
14. Chowdhury, *Loc. Cit.*
15. Stein, *Op. Cit.*, pp. 325-27.

people who possess giftedness in music are usually those, who express or sublimate their feelings in production of music. Consequently, these people are hypertensive and easily get upset. This viewpoint has also been asserted by Seashore[16] (1938).

Factor 'D' (Phlegmatic Vs. Excitable)

The next significant factor extends from 'Phlegmatic' at the lower end to 'Excitable' at the higher end. Table 4.1 and Table 4.2 reveal that the two contrasted groups differ significantly ($P<.01$) at both the levels. The musically gifted, school as well as college girls, have shown lower mean as compared to the non-gifted school and college girls. It revealed that the gifted group identifies itself with the lower end of the continuum whereas the non-gifted girls associate themselves with the higher end of the continuum.

This shows that musically gifted girls, both at school and college levels, tend to be deliberate, inactive and stodgy. On the other hand, musically non-gifted girls, show a tendency of being impatient, demanding and over-active.

Similar results were reported by Whittington[17] (1957). He found that children who demonstrated ability in music were inactive but careful, whereas non-musical children were very active and impatient. Mainwaring[18] (1931) also found that children who had a low score on musical aptitude test, were very impatient and over-active.

The musically non-gifted girls, for want of avenues for sublimation of their ideas, are very active and impatient. This fact has also been demonstrated by the genetic studies of Stein[19] (1953).

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16. C.E. Seashore. *Psychology of Music*. New York : McGraw Hill Co., 1938, p. 118.
17. R.W.T. Whittington, *The Assessment of Potential Musical Ability in Secondary School Children*. J. Edu. Psychol., 48, 1957, pp. 1-10.
18. J. Mainwaring, *Experiments on the Analysis of Cognitive Processes in Musical Ability*. Brit. J. Educ. Psychol., I, 1931, 313-21.
19. Stein, *Loc. Cit*.

Factor 'E' (Obedient Vs. Assertive)

The factor 'E' extends on a scale with 'Obedient' at the lower end and 'Assertive' at the higher end. Significant differences were observed on this factor on the group mean of gifted and non-gifted girls at school and college level. The mean for gifted girls was observed to be low at both the levels. The C.R. Values of 7.93 and 10.64 ($P<.01$) for school and college girls respectively show that gifted girls in music are likely to associate themselves with the lower end of the continuum whereas the non-gifted girls tended more towards the higher end of the continuum.

According to the manual of the test, musically gifted girls as compared to non-gifted girls (both at school and college levels) are inclinded to be mild, accommodating, conforming and submissive. They tend to give way to others. They are docile in nature, dependent, confessing, anxious for obsessional correctness.

On the other hand, the musically non-gifted, as compared to gifted girls both at school and college levels tend to be independent, aggressive and stubborn. These girls are assertive, self-assured and independent minded. They tend to be austere, hostile or extrapunitive and authoritarian. They cannot tolerate authority.

Findings of the present study are in line with those reported by Kwalwasser[20] (1955). He compared the personality profiles of females of high achievers and low achievers in music performance test. High achievers in music test were found to be submissive, modest and gentle as compared to low achievers who were found to be aggressive with rigid opinion.

Billroth[21] (1895) also obtained similar results. Similarly, Carroll[22] (1930) found musically gifted girls to be more submissive and depressive as compared to those who were non-gifted in music.

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[20] Kwalwasser, *Loc. Cit.*

[21] Billroth, *Werist Musikalish* ? Berlin : Ed., Hansik, 1895, p. 54.

[22] Carroll, *Loc. Cit.*

The results obtained in the present study may be justified on the grounds that gifted children in music, more or less, remain busy in themselves, lost in their own ideas and there is every likelihood that they give way to others and project submissiveness in their behaviour.

Factor 'F' (Sober Vs. Happy-Go-Lucky)

This factor extends from 'Sober' at the lower end to 'Happy-Go-Lucky' at the upper end. The means of musically gifted and non-gifted girls at school level came out to be 4.30 and 5.79, and 4.46 and 5.98 at college level respectively. The difference in the means at both the levels were found to be significant ($P<.01$).

The detailed perusal of the manual reveals that the musically gifted girls as compared to musically non-gifted girls tend to be sober, prudent, serious and taciturn. These girls tend to be restrained, reticent and introspective. They are sometimes dour, pessimistic, unduly deliberative and considered smug and primaly correct by observers.

On the other hand, musically non-gifted when compared with musically gifted both at school and college levels, seem to be happy-go-lucky, gay and enthusiastic. They tend to be cheerful, active, talkative, frank expressive, effervescent and carefree.

The findings are supported by Gehee and Lewis[23] (1942). They found that personality characteristics like seriousness, responsibility and pessimistic nature are observed in musically superior children. These results corroborate with the findings of Bentley[24] (1966) who found that persons who excelled in music are superior, wise, serious and reserved as compared to the general population. Thus Bergan[25] (1966) with Commentators cited above emphasised that every gifted and creative person in music has achieved particularly high ratings on characteristics such as forethought, commonsense, sobriety and curiosity.

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[23] Gehee and Lewis, *Loc. Cit.*

[24] A. Bently, *Musical Ability in Children and Its Measurement.* London : Harrap, 1966.

[25] Bergan, *Loc. Cit.*

Factor 'H' (Shy Vs. Venturesome)

The continuum of this factor extends from 'Shy' at the lower end to 'venturesome' at the upper end.

It can be seen from the Table 4.1 and 4.2 that the obtained C.R. values of 4.73 and 4.92 at school and college level respectively are significant beyond .01 level of confidence. The means of musically gifted girls for both school and college levels were observed to be of lower order as compared to the musically non-gifted girls. It is therefore interpreted that musically gifted girls are likely to be more restrained, diffident and timid. They tend to be shy, withdrawing, cautious and retiring. These girls are likely to be suffering from inferiority complex. Such girls tend to bestow friendship only one or two rather than keeping contact with all.

Contrary to this, musically non-gifted as compared to gifted girls both at school and college levels are venturesome, socially bold, uninhibited and spontaneous. However, they can be careless of detail, ignore danger signals and consume much time in talking. They also tend to be pushy and actively interested in the opposite sex. The results obtained in the present study are in line with those reported by Farnsworth[26] (1938). Who found that children who had higher scores in music tended to be fearful, shy and were lacking confidence. Their counterparts on the other hand, were found to be very social, daring and fearless. Gordon[27] (1971) has also endorsed the views expressed by Farnsworth. He also reported that people with giftedness in music usually suffer from inferiority complex, lack confidence and show sudden reluctance in most of the activities.

The result of the present study may be justified on the ground that musically gifted girls' basic nature of being introvert and aloof deprives them of many social interactional avenues which might render them to possess shy and timid nature as well.

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[26] P.R. Farnsworth, *Ratings in Music, Art and Abnormality in the First Four Grades*. J. Psychol., 6, 1938, pp. 89-94.

[27] E. Gordon, *Psychology of Music Teaching*. Englewood Cliffs, New Jersey : Prentice Hall, Inc., 1971.

Factor 'O' (Placid Vs. Apprehensive)

The continuum of this factor extends from 'Placid' at the lower end to 'Apprehensive' at the upper end. It can be seen from the Tables 4.1 and 4.2 that the mean of the gifted girls both at school and college levels is higher as compared to the same in non-gifted girls. The critical ratios were found to be significant ($P. < 01$) at both the levels.

It is indicated from the above results that the two contrasted groups differ significantly on trait '0'. The details of the manual indicate that musically gifted girls in comparison to non-gifted girls at school and college level are apprehensive, suffering from worry, depressive and troubled. They tend to be moody, full of foreboding and brooding with childlike tendencies to anxiety in difficulties and do not feel accepted in groups or are free to participate. On the other hand, the musically non-gifted girls, in comparison to the gifted girls, are more self-assured, confident, reserve and untroubled. They tend to be placid with unshakable nervous system and have mature, unanxious confidence in themselves and capacity to deal with things. These girls tend to be more resilient and secure.

The results of the present study are in line with those reported earlier by Sharma[28] (1969). On administering T.A.T. he found that artists had more of guilt feelings. Carroll[29] (1930) in his study had reported in early 1930's that at all ages musically bright children surpass average children in submissiveness and depression.

Since, the musically gifted children are emotionally unstable, therefore, there is every chance that these children will be insecure and non-confident.

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[28] Sharma, *Loc. Cit.*

[29] Carroll, *Loc. Cit.*

Factor 'Q_2' (Group Dependent Vs. Self-Sufficient)

The extreme ends of this factor are 'Group-Dependent' at the lower end and 'Self-sufficient' at the upper end. This trait showed significant differences only at the school level and not at the college level. Table 4.1 shows that the means for musically gifted and non-gifted girls are 6.25 and 4.38 respectively with significant level ($P<.01$).

The interpretation from the manual shows that musically gifted girls at the school level as compared to their counterparts, prefer their own decisions and taking their own actions. They are more resourceful, temporarily independent and accustomed to adopt their own way. They discount public opinion, but are not necessarily dominant in their relations with others. They do not dislike people but simply do not need their agreement or support. Contrary to it, the musically non-gifted girls in comparison to gifted girls (at school level) prefer to work and make decisions with other people and depend on social approval. They seek admiration from the general public. They tend to go with the group and might be lacking in individual resolution. They are not necessarily gregarious by choice, rather they need group support.

The results obtained in the present study are in contrast to the findings of Mursell[30] (1937) and Schoen[31] (1940) who found that the persons who are having high musical excellence were dependable, unsocial with lesser degree of self-direction.

There is every likelihood of the musically gifted girls to have their own ways, because of their involvement in music. Such girls do not like any confirmity of the directions of others. This is true from the humanistic point of view also. The humanism of these people does not fallow the guidelines of others.

Factor 'Q_3' (Undisciplined Self-conflict Vs. Controlled)

The continuum of this factor extends from 'Undisciplined self-conflict' at the lower end and 'Controlled' at the higher end. Tables 4.1 and 4.2 reveal that the group mean of the musically gifted girls was found to be higher than the group mean of musically non-gifted girls. The 't' values of 10.77 and 3.61 for school and college level respectively were observed to be significant ($P<.01$). This shows that musically gifted and non-gifted girls exhibit significant differences.

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[30] Mursell, *Loc. Cit.*

[31] Schoen, *Loc. Cit.*

A detailed perusal of the manual reveals that musically gifted girls, tend to have controlled emotions and their general behaviour is inclined to be socially aware and careful. These girls show evidence of self-respect and show a regard for social reputation. They sometimes tend to be obstinate also.

On the other hand, musically non-gifted girls possess undisciplined self-conflict. They are careless of protocol and follow their own urges. They usually do not bother for will-control and regard for social demands. They are not considerate, careful and painstaking.

The findings of the present study support Carroll's[32] (1930) view that musically gifted children were found to be rule-bound and have better determination power. The justification given above holds good here also. Due to relatively unsocial nature of the musically genius people, they are socially precise and value self-respect. Their behaviour may sometimes appear obstinate due to their being introvert in nature.

The factors on which no significant differences were obtained between musically gifted and non-gifted at school level were Factor 'G' (Expedient Vs. Conscientious), Factor 'I' (Tough-Minded Vs. Tender-Minded), Factor 'J' (Vigorous Vs. Doubting) and 'Q_4' (Relaxed Vs. Tense). It can be said that musically gifted and musically non-gifted girls have an equal chance of reflecting either of the traits.

At the college level, musically gifted and musically non-gifted girls do not show any significant in the factors reported at the school level. The musically gifted and non-gifted girls also do not show any significant difference in the factor 'Q_2' (Group-Dependent Vs. Self-Sufficient).

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[32] Carroll, *Loc. Cit.*

The musically gifted girls at school level have shown significant differences on almost same factors which were found for college level. Since musical ability like any other ability, remains constant throughout the life, therefore, it is concluded that the categorization of the girls into musically gifted is very sound and as the categorisation was done on the basis of the 'Musical Achievement Tests', therefore, an indirect index of the validity of the tests is revealed and that the tests of musical ability do possess a certain measure of construct validity.

CHAPTER V

Giftedness : A Function of Intelligence

Since the present study was exploratory in nature, therefore, it was necessary to test the hypotheses mentioned earlier. Though it is well established that giftedness in any endeavour is a function of intelligence. Yet the investigator attempted the analysis partly because she wanted to validate the classification scheme adopted for the identification of the gifted and non-gifted girls and partly to study the interactional effects of the variables under study. The latter hunch was tested with a view to ensure whether it is knowledge part which makes a person gifted in music or is it a function of intelligence ?

For the purpose of analysis, 2×2 factorial design of 'ANOVA' was framed as suggested by Guilford[1] (1970), Edwards[2] (1971) and Snedecor and Cochran[3] (1973).

Before actually applying analysis of variance, it was considered worthwhile to test the assumptions underlying the techniques so that at a later stage the whole effort may not be futile. The assumptions of 'ANOVA' were tested which are as follows :

1. The sampling within categories may be said to be random because the students were selected randomly selected institutions.

2. When several samples are observed, one often wants

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[1] Guilford, *Loc. Cit.*

[2] A.L. Edwards, *Experimental Design in Psychological Research*. Amerind Publishing Co. Pvt. Ltd., New Delhi : 1971.

[3] G.W. Snedecor and G.W. Cochran, *Statistical Methods Oxford &* IBM Publishing Co. New Delhi : 1973.

to know whether it is reasonable to believe that all their populations have the same mean i.e. $M_1=M_2...M_K=\bar{M}$ have the same variance. Thus homogeneity of variance should be ensured before proceeding with the technique. The investigator used Hartley's test for testing homogeneity of variance.

The Table 5.1 shows the summary of Hartley's test of homogeneity.

Table 5.1

Summary of Hartley's Test on Intelligence Scores

Source of Variation	ΣX	ΣX^2	σ^2
Musically Gifted at School Level	8451	975181	309.76
Musically Gifted at College Level	7893	872463	307.47
Musically Non-Gifted at School Level	6641	62243	462.22
Musically Non-Gifted at College Level	6675	618805	334.18

$$F=\frac{\sigma^2 \text{ max.}}{\sigma^2 \text{ min.}}$$

$$=\frac{462.22}{307.76}=1.503 \text{ (Not significant)}$$

This gives support to the belief that these samples are not heterogeneous in variance. Since the obtained value is not significant, the data offers no significant evidence against the hypothesis, that the sample are drawn from the population with equal variances.

3. Testing the normality of the scores within homogeneous sets was not thought necessary by the investigator because of the fact that F-ratio is rather insensitive to variations in the shape of population distribution. But to Guilford, "One general finding in Norton's study on 'Sampling problem' in analysis of variance was that F-ratio is rather insensitive to

variations in the shape of population distribution. This is consistent with the known principles that the distribution of means (Sampling distribution) approach normality, even though population is not normally distributed[4]."

The present study concerns the testing of differences in intelligence of various sub-groups based on independent variables of levels of education and degree of giftedness, and the presence or absence of significant interaction among these two independent variables.

In this investigation the dependent variable is intelligence of girls. One factor of interest is level of education and this is varied in two ways i.e. school level and college level. This factor is designated as 'A' and its bifurcations are A_1 (School Level) and A_2 (College Level). A second factor of interest is the giftedness and it is also varied in two ways. It is designated as degree of giftedness as 'B' factor and the two levels i.e. B_1 corresponds to gifted girls and B_2 corresponds to non-gifted girls.

A given treatment will be obtained by selecting one level from each of the two factors. For example, one treatment will be A_1 B_1 and will represent a treatment consisting of school girls with giftedness in music. The total number of different treatments will be 2×2=4 and they are shown in the Table 5.2. The treatments are used with a randomized group design with (N=75) observations for each treatment.

Table 5.2

The Four Combinations of 2×2 Factorial Experiment

Treatment	*Level of Education*	*Level of Giftedness*
A_1 B_1	School Level	Musically Gifted Girls
A_1 B_2	School Level	Musically Non-gifted Girls
A_2 B_1	College Level	Musically Gifted Girls
A_2 B_2	College Level	Musically Non-Gifted Girls

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4. Norton's Study as quoted in J.P. Guilford's *Fundamental Statistics in Psychology and Education*. New York : McGraw Hill. 1965.

5·1. Results

The means and summary of the results of the 'ANOVA' were given in the Tables 5.3 and 5.4.

Table 5.3

Means of Different Groups on Intelligence

Factors	A_1	A_2	$\Sigma X\ M_1+M_2$
B_1	$M_1=112.68$ (N=75)	$M_2=88.55$ (N=75)	100.62
B_2	$M_1=106.44$ (N=75)	$M_2=89.00$ (N=75)	97.72
$\Sigma X M_1+M_2$	109.56	88.77	

Table 5.4

Summary of Analysis of Variance for Intelligence

S. No.	*Source of Variation*	*Sum of Squares*	*d. f.*	*Mean squares*	*F*
1	A	32406.35	1	32406.35	137.64^{**}
2	B	627.86	1	627.86	2.67
3	AXB	840.07	1	840.07	3.57
	Within	69692.39	296	235.45	—

$^{**}P<.01$

5.2. Discussion of the Results

1. It was found that F-ratio for 'A' (Gifted and Non-gifted) was highly significant beyond .01 level of confidence. This indicates that musically gifted girls and non-gifted girls differed significantly on intelligence. This means that the categorization of the girls into gifted and non-gifted could be easily accomplished by intelligence also. The means of the gifted girls were found to be higher. This result is in line with the findings of those who consider giftedness as a function of intelligence, namely :

Cox[5] (1926), Schoen[6] (1940), Lehman[7] (1952), McLeish[8] (1953) and Farnsworth[9] (1958).

The obtained results also seem justified from the theoretical point of view as well. As reported by Getzel and Jackson[10] (1962) a Threshold of intelligence is required for any activity. Seeing in the light of Guilford[11] (1964) S.I. Model, musical excellence is an activity which is divergent in operation and verbal in content with transformation type of product reveals that some distinct factors of higher level of intelligence are essential for excellence in this endeavour.

Recently, Cohen[12] (1974), Murphy and Terrin[13] (1975) have demonstrated that both intelligence and musical ability are positively related constructs.

The F-Ratio of factors B (Level of Education) was found to be non-significant as expected by the investigator. The Non-significant F-ratio shows that intelligence is not affected by the level of education. This is true also because intelligence develops upto a certain level and after that it remains practically constant. It is immaterial whether a student is studying in college or school. Since the students even at school level were adolescents, therefore, they had crossed the age of 15 which is characterised as the age of attaining optimum of intelligence level (Hebb's[14] point of view). This may be the

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5. C. Cox, *Gentic Studies of Genius.* Vol. 2, Standard Calif, Stanford University Press, 1926, p. 417.
6. Schoen, *Loc. Cit.*
7. Lehman, *Loc. Cit.*
8. McLeish, *Loc. Cit.*
9. Faransworth, *Loc. Cit.*
10. J.W. Getzel and P.W. Jackson, *Creativity and Intelligence Exploration with Gifted Students.* New York : John Wiley, 1962, pp. 10-18.
11. J.P. Guilford, *The Nature of Human Intelligence*, McGraw Hill, New York : 1957.
12. C.J. Cohen, *Programming for the Gifted.* The Fund. 4. (3). 1974, pp. 91-92.
13. J.W. Murphy and O Terrin, *Education of the Gifted,* Dissertation Abstracts, Univ. California : 3246 A ; 1975.
14. D O. Hebb, *The Organisation of Behaviour.* New York : John Wiley, 19 4 :

reason that intelligence has not been shown dependent upon the level of education. The combined effect of gifted, non-gifted and level of education were found to have non-significant effect upon the intelligence.

The obtained results in the present study are indicative of the fact that intelligence can be utilized as a dependent variable along with achievement measured by standardized tests for the categorization of the pupils into musically gifted and non-gifted girls. In other words, we can say that musical excellence is a function of intelligence and hence, only those students who show above average intelligence level be allowed to pursue music subjects.

The fact that gifted girls classified on the basis of achievement in music have shown higher intelligence, gives an indirect measure of the validity of classification scheme adopted in the present study at both the levels.

The non-significant effect of the stages of education are indicative of the fact that musical ability is determined by those mental faculties which patternize at a very early stage of life and after attaining an optimum level remain practically constant. This is why, whether at school or at college, the intelligence did not reveal any significant difference. This result gives another evidence to the fact that musical excellence is a function of intelligence.

Similarly, as expected, the interactional effect was predicted to be of lower order. Whatsoever symptomatic values have been obtained are due to chance factor or might be due to the variance contributed by the factor 'A' (Giftedness Vs. Non-Giftedness).

Hence, it can be claimed that the obtained results show adequate evidence of the fact that intelligence is a gateway of musical excellence.

CHAPTER VI

Giftedness : A Function of Creativity

Having studied the personality profiles and convergent ability in musically gifted and non-gifted girls, the next step in order to complete the psychological assessment was to study the creativity among the gifted as well as non-gifted girls at the two levels of education namely, school and college.

The pattern of analysis, followed in the previous Chapter was adhered to in the analysis of creativity in relation to giftedness/non-giftedness in music at different levels.

Since Analysis of Variance calls for satisfaction of the basic assumptions underlying this technique, therefore, the investigator had to test the assumptions underlying the technique.

The paradigm of the study is shown in Table 6.1

Table 6.1

Paradigm of the Study on Creativity Scores

	Musically Gifted	*Musically Non-Gifted*
School Level		
……………………………Creativity Scores……………………		
College Level		

The assumptions underlying 'ANOVA' (cf. pp. 63-64) were all tested for Creativity Scores.

The assumptions of homogeneity of variance within sets was only experimented by applying Hartley's Test of Homogeneity.

The Table 6.2 shows the summary of Hartley's Test of Homogeneity.

Table 6.2

Resume of Hartley's Test on Creativity Scores

Source of Variation	ΣX	ΣX^2	σ^2
Musically Gifted at School Level	743.96	16326.96	119.29
Musically Gifted at College Level	757.39	17960.49	139.35
Musically Non-Gifted at School Level	757.59	10753.05	41.91
Musically Non-Gifted at College Level	688.37	10636.07	58.53

$$F=\frac{\sigma^2 \text{ max.}}{\sigma^2 \text{ min.}}=\frac{139.35}{41.91}=3.32$$

The F-ratio obtained in the analysis was found to be non-significant, thereby suggesting that the variance within the sets was not heterogeneous and it was assumed that the variance within the sets was homogeneous. This assumption of homogeneity of variances was fulfilled. The reasons for not testing the rest of the assumptions have been already discussed (cf. pp. 64-65).

The analysis of variance was applied by taking giftedness/non-giftedness and level of education as independent variables while creativity was treated as dependent variable. An outline of the design is shown below :

(i) **Independent Variables**

A =Giftedness in Music

A_1=Musically Gifted Girls
A_2=Musically Non-Gifted Girls
B =Level of Education
B_1=School Level
B_2=College Level

(ii) **Dependent Variable**

C=Creativity Scores.

The mean creativity scores of the various variables under study are shown in Table 6.3.

Table 6.3.

Mean of the Various Sub-Groups on Creativity Scores

B	A_1	A_2	$\Sigma \bar{X} M_1 + M_2$
B_1	$M_1 = 10.00$ (N=75)	$M_2 = 10.10$ (N=75)	10.05
B_2	$M_1 = 10.10$ (N=75)	$M_2 = 9.18$ (N=75)	9.64
$\Sigma \bar{X} M_1 + M_2$	10.05	9.64	

6.1. Results

The computations were carried out by keeping in view the theoretical framework as suggested by Edwards[1] (1971). The table 6.4 shows the summary of Analysis of Variance.

Table 6.4

Summary of Analysis of Variance for Creativity

S.No.	*Source of Variation*	*Sum of squares*	*df.*	*Mean Squares*	*F*
1	A	12.58	1	12.58	0.14
2	B	12.71	1	12.71	0.14
3	A×B	19.56	1	19.56	0.22
	Within	26559.24	296	89.73	—

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[1] Edwards, *Loc. Cit.*

6.2. Discussion of the Results

1. A very low value of F-ratio for the main effect of 'A' reveals that creativity is independent of the degree of giftedness in Music i.e. whether a person is gifted in music or non-gifted in music has no relation with creativity scores. The result seems justified on the ground that in the present investigation the categorization of gifted and non-gifted girls was done on the basis of the achievement in music at the respective level of education. Achievement in any endeavour is a convergent ability whereas creativity is a divergent ability. Therefore, there is no possibility of one ability depending upon the other.

The results of the present study are not in conformity with the earlier findings of Taylor (1959), who compared the musical composition and creativity. He concluded that musical composition and creativity are closely related variables. He further found that more creative person is able to produce better musical composition. Franklin[3] (1956) factor analysed a battery of tests and found that musical ability has two aspects namely, Mechanical Acoustic and Creative Musical Talent.

It may be due to the reason that the mental faculties of the students do not get unfolded due to the lack of enriched educational environment. Creativity blossoms only when the child develops his talents without any extraneous inhibitions. At the school and college level the child does not get freedom of thinking due to parental and other influences which retard the productive thinking of musically gifted students. Moreover, they are otherwise also a social, ego-centric and introvert.

Moreover, giftedness in music has been found positively related with intelligence and intelligence has been found not related to creativity. There is almost a bibliographical explosion evincing this aspect in the studies of Dearborn[2] (1898),

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[2] G.B. Dearborn, *A Study in Imagination*. American J. of Psy, 1898, pp. 183-190.

Chassell[3] (1916), McColy and Meier[4] (1931), Thurstone[5] (1952), Yammoto[6] (1965), Edward and Tyler[7] (1965) and M.D. Lindman and C.J. Fullagor[8] (1975).

2. The non-significant value for the level of education suggests that creativity is independent of the level of education.

It can be said that the creativity among students, whether studying at school level or at college level, is immaterial. Whatever mental capacity the students possess at school level is not very likely to improve at college level, since the atmosphere of school as well as college remains almost the same as students at both the levels are striving to pass the examination oriented classes, hence, the results of the present study seem to be justified.

3. The F-ratio in Table 6.4 for the interaction of degree of giftedness and the level of education on creativity was also found non-significant which indicates that creativity is independent of the two independent variables. This may be due to the fact that creativity was found independent of both giftedness/non-giftedness in music as well as level of education. Moreover, the cell means indicate that variance seems to be equal in all the four cells and that is why dependence of creativity on these factors is practically constant.

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[3] L.M. Chassell, *Tests for Originality*. J. of Edul. Psy., 1916, 7, pp. 317-29.

[4] W. McColy and N.C. Meier, *Recreative Imagination*. Psycho. Monogo. 1939, 51, No. 3, pp. 108-16.

[5] L.L. Thurstone, *Creative Talent, Application of Psychology*. New York: Harper and Row Pub. 1952, pp. 18-37.

[6] K. Yammoto, *Effects of Restriction of Range on Test Unreliability on Correlation Between Measures of Intelligence and Creative Thinking*. Brit. J. of Psy., 1965, pp. 300-305.

[7] M.P. Edward and L.E. Tyler, *Intelligence, Creativity and Achievement in Non-Selective Public Junior High School*. J. of Edul. Psy., 1965, p. 101.

[8] M.D. Lindman and C.J. Fullagor, *Creativity and Intelligence in South African Adolescent*. J. of Behavioural Sciences, Vol. 2—(4), 1975 (June), pp. 179-82.

According to S.I. Model of Guilford[9] (1964) any ability is represented by a definite operation, a particular content and a particular product. If this theory is assumed to be true then the abilities required for excellence in music will be a set of the three types of abilities whereas the creativity might have a separate structure. And there is every likelihood that there is no relationship among these.

Since the operation, content and product remain practically constant in all the age groups, therefore, the level of education might be a factor which when seen in consonance with giftedness might not have contributed any variance and as such the combined interactional effect on the creativity is non-significant.

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9. Guilford, *Loc. Cit.*

CHAPTER VII

Giftedness : A Function of Adjustment

After studying creativity in relation to giftedness and non-giftedness in music among girls at school level and college level, the next step was to study the adjustment patterns in relation to these two variables. The analysis could be made by taking composite adjustment scores. Nevertheless, with a view to be comprehensive, analysis was undertaken to study the adjustment of the musically gifted and non-gifted to the various aspects of life, viz, Home Adjustment, Health Adjustment, School/College Adjustment, Emotional Adjustment and Social Adjustment respectively. Two contrasted groups which were taken in the previous chapters were again utilized for the purpose of analysis.

Since the number of comparisons involved twenty pairs in all, therefore, analysis of variance was preferred over other techniques due to the advantages spelled out in chapter five. The analysis of variance was applied and therefore, it was obligatory on the part of investigator to test the assumptions underlying the technique in order to find out the practicability of the technique.

The assumptions of 'ANOVA' (cf. pp. 63-64) were followed by experimental testing. The homogeneity of variance within sets was tested by applying Hartley's Test of Homogeneity. The tests of homogeneity of variance were tested separately in all the types of adjustment. Table 7.1 shows the summary of Hartley's test of homogeneity of variance within sets.

From the table of F-ratios it can be seen that none of the ratios came out to be significant and thus, all the hypotheses of heterogeneity of variance for all the adjustment patterns

Table 7.1

Summary of Homogeneity of Variance for Different Types of Adjustment

Factors		* *M.G.S.G.*	** *M.G.C.G.*	*** *M.N.G.S.G.*	**** *M.N.G.C.G.*	*F. Ratio*	*Significant Level*
A. (Home Adjustment)	ΣX	888	929	839	913		
	ΣX^2	11002	12069	10047	11591	1.59	Not. Sig.
B. (Health Adjustment)	ΣX	704	815	730	732		
	ΣX^2	7501	9331	7746	7826	1.88	Not. Sig.
C. (School/College	ΣX	960	1013	947	969		
Adjustment)	ΣX^2	13493	14545	12909	13439	1.39	Not. Sig.
D. (Emotional Adjust-	ΣX	916	913	1049	1151		
ment)	ΣX^2	13942	12641	16543	19389	1.80	Not. Sig.
E. (Social Adjustment)	ΣX	578	604	534	560		
	ΣX^2	4858	4849	4204	4404	1.92	Not. Sig.

*Musically Gifted School Girls.

**Musically Gifted College Girls.

***Musically Non-gifted School Girls.

****Musically Non-gifted College Girls.

were rejected and the variance within sets was assumed to be homogeneous.

7.1. Experimental Design

For the calculations of required F-ratios, 2×2 factorial design of 'ANOVA' was prepared separately for all the dimensions of adjustment on the lines incorporated in Chapters V and VI. All the five dimensions of adjustment viz., Home adjustment, Health adjustment, School/College adjustment, Emotional adjustment and Social adjustment have been dealt with as separate units in the present investigation. The partitioning of all the five variables was done similarly as shown in Chapters V and VI. The classification of the variables is shown below.

(i) Independent Variables

$A =$ Giftedness/Non-Giftedness in Music
$A_1 =$ Musically Gifted Girls
$A_2 =$ Musically Non-Gifted Girls
$B =$ Levels of Education
$B_1 =$ Girls at School Level
$B_2 =$ Girls at College Level

(ii) Dependent Variable

Each area of adjustment is taken as dependent variable separately in the experimental design, so dependent variables are :

(i) Home adjustment
(ii) Health adjustment
(iii) School/College adjustment
(iv) Emotional adjustment
(v) Social adjustment.

The means and the summary of the results pertaining to adjustment are given in Tables 7.2 and 7.3.

Table 7.2

Value of Means of Different Groups on Adjustment—Home, Health, School/College, Emotional and Social

S. No. *Levels of Education*	A_1 *(School Level)*		A_2 *(College Level)*	
Areas of Adjustment	B_1 *Musically Gifted*	B_2 *Musically Non-Gifted*	B_1 *Musically Gifted*	B_2 *Musically Non-Gifted*
1. Home Adjustment	11.84	12.39	11.19	12.03
2. Health Adjustment	9.68	10.87	9.73	9.76
3. School/College Adjustment	7.71	7.85	7.15	7.56
4. Emotional Adjustment	12.51	12.17	13.99	13.35
5. Social Adjustment	13.11	13.51	12.63	12.92

7.2. Discussion of Results

The results obtained in relation to each area of adjustment are discussed herewith.

A. Home Adjustment

The obtained F-ratio for the main effect 'A' (degree of giftedness) was found to be non-significant which shows that 'Home Adjustment' is independent of either giftedness in music or non-giftedness in music. The obtained results very much seem to be justified on the ground that in Indian social context the students are not encouraged to remain absorbed in their musical enterprises at home. The students by and large, do not possess the required instruments at home. Whatever education they receive is limited to school or college walls. As such, there is every likelihood that giftedness in music or non-giftedness in music is not influenced with the home adjustment of the pupils.

Table 7.3

Summary of Analysis of Variance for Home, Health, School/College, Emotional and Social Adjustment

Element	Adjustment Areas	Main Effect' A'				Main Effect 'B'				Interaction Effect 'A × B'			
		S.S.	*Df*	*M.S.*	*F.*	*S.S.*	*Df.*	*M.S.*	*F.*	*S.S.*	*Df.*	*M.S.*	*F.*
A	Home Adjustment	19.25	1	19.25	2.06	36.05	1	36.05	3.87*	1.62	1	1.62	0.17
B	Health Adjustment	20.80	1	20.80	2.71	27.60	1	27.60	3.59	23.23	1	23.23	3.03
C	School/College Adjustment	13.67	1	13.67	3.15	5.83	1	5.83	1.34	1.35	1	1.35	0.31
D	Emotional Adjustment	406.00	1	406.00	16.38**	19.76	1	19.76	0.80	53.24	1	53.24	2.15
E	Social Adjustment	43.91	1	43.91	3.89*	9.01	1	9.01	0.80	0.21	1	0.21	0.02

*P< .05

**P< .01

The significance of 'B' factor indicates that the home adjustment of the pupils is a function of level of education. The mean values of the college students were observed to be higher for both the gifted as well as the non-gifted girls. This implies that students at the college level are better adjusted at home as compared to their counterparts in schools. This may be due to the fact students at the college level are more mature to understand the value and importance of home and hence, better adjusted, whereas students at the school level are not mature enough to understand the value and importance of home.

The combined interaction of degree of giftedness and the level (school/college) of education are found to have insignificant effect upon the home adjustment of the pupils.

This may be true because two independent variables are independent of each other theoretically and consequently their combined interaction is also insignificant and have no effect upon the home adjustment of the pupils.

B. Health Adjustment

The obtained F-ratio for the main effect 'A' indicates that there is no relation between giftedness in music and the health adjustment of the students. This may be true of those who excel in music as they do not strain themselves physically and hence, there is no significant difference in the health adjustment of the pupils.

Though the F-ratio for 'B' was non-significant but it was nevertheless symptomatic which indicates that health adjustment was dependent on the level of education to some extent. The mean of the health adjustment scores were found to be higher at the college level, thereby suggesting that students at college level showed better health adjustment. This may be explained on the grounds that students at the college level find more avenues to understand and develop their physical body etc. The students are also mature enough to understand well the value of health at the college level as compared to school level, consequently the obtained result stands justified.

The F-ratio for the interaction of degree of giftedness/non-giftedness as well as the level of education was found to be non-significant which means that health adjustment was independent of these two variables. This is true also because the two independent variables are more or less uncorrelated with each other and there is no likelihood of these two variables affecting the health adjustment.

C. Educational Adjustment

The symptomatic F-ratio for the main effect 'A' reveals that educational adjustment is definitely affected by the degree of giftedness/non-giftedness to some extent. A study of the Table 7.2 reveals that the means were found to be higher in the case of gifted girls, thereby suggesting that musically gifted girls are more adjusted in educational institutions as compared to their counterparts. The results can be justified on the ground that both educational adjustment and giftedness are functions of intelligence and there is every likelihood that one will positively affect the other.

The non-significance of 'B' factor means that educational adjustment is independent of the levels (school/college) of education. This may be true as a person who is gifted or otherwise, will behave in the same manner.

The interactional effect of 'A' and 'B' was also found to be non-significant which means that educational adjustment is independent of the interactional effect of giftedness/non-giftedness in music and the level of education.

D. Emotional Adjustment

It was found that F-ratio for 'A' (Musically gifted and non gifted) was highly significant. It shows that musically gifted girls and non-gifted girls differed significantly on emotional adjustment. The mean value on emotional adjustment was found to be higher in the musically non-gifted girls as compared to the musically gifted girls, thereby indicating that musically non-gifted girls are emotionally better adjusted. It is confirmed that the same type of findings were obtained earlier (cf. pp. 54-55). The results obtained can be justified on the grounds that musically gifted students are oversensitive, low in frustration, pessimistic and get easily upset, that is why they mostly lack emotional adjustment.

The musicians absorbe themselves in the sad and heart touching tunes in such a way that they lose their mental stability and hence, the cause for emotional maladjustment.

1. The obtained results corroborate the findings of Miles and Wolfe[1] (1936), Stein[2] (1953), Chaudhari[3] (1961) and Hiriartborde[4] (1964). All these researchers had found that higher achievers in musical ability are likely to be emotionally unstable, very sensitive, dissatisfied and possessing neurotic symptoms.

2. The F-ratio for the main effect 'B' (levels of education) was found to be non-significant which means that emotional adjustment is independent of the level of education. This may be true that musical ability is an inborn trait—so it remains constant at every level of education. It can be safely stated that school or college level has nothing to do with emotional adjustment.

3. The interactional effect of 'A × B' (Giftedness in Music × Level of Education) was also found to be non-significant which means that emotional adjustment is independent of the combined effect of giftedness/non-giftedness in music and the levels of education i.e. school and college.

E. Social Adjustment

1. The significant F-ratio for main effect 'A' reveals that social adjustment is dependent upon the degree of giftedness in music. The mean on the social adjustment was found to be higher in the musically non-gifted girls, thereby indicating that non-gifted girls are socially better adjusted than the musically gifted girls.

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[1] Miles and Wolfe, *Loc. Cit.*

[2] Stein, *Loc. Cit.*

[3] Chaudhari, *Loc. Cit.*

[4] Hiriartborde, *Loc. Cit.*

It is worth noting that Wing[5] (1941) found that music composers tend to be introverts. It seems that creative talent in music is closely connected with introverted tendencies. Similar type of results were found out by Miles and Wolfe[6] (1936), who concluded that genius musicians are characterized by the trait of preservativeness and aloofness. Schwardron[7] (1967) and Gross and Seashore[8] (1941) investigated that musically bright individuals are introverts and lack social intelligence.

Since, the musically gifted girls remain engrossed in their own endeavours, there is every likelihood that their social adjustment is poor. The musically gifted pupils remain lost in their musical creations, they unconsciously forget about the social norms and hence, are labelled as socially poor in adjustment even if they make constrained effort to adjust in their society. There is every likelihood that they cannot surpass the non-gifted pupils. The sample in the present investigation have also exhibited the same trend. The F-ratio for 'B' was found to be non-significant which means that social adjustment is independent of the level of education. This may be true because a person who is gifted or otherwise will behave in the same manner, whether he is in the college or in the school.

The interactional effect of (A × B) was also found to be non-significant, which means that social adjustment is independent of the combined interactional effect of giftedness non-giftedness in music and the level of education (school/college).

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5. Wing, *Loc. Cit.*
6. Miles and Wolfe, *Loc. Cit.*
7. Schwardon, *Loc. Cit.*
8. Grass and Seashore, *Loc. Cit.*

CHAPTER VIII

Conclusions, Educational Implications and Suggestions

In this Chapter it is proposed to draw conclusions, understand the educational implications and make suggestions.

8.1. Conclusions

The inferences drawn on the basis of results obtained from this investigation are discussed below :

Musical Achievement Tests

It can be generalized, therefore, that the "Musical Achievement Tests" constructed by the investigator, are reliable, valid, practicable and above all functional in measuring the achievement of students in music.

Study of Personality

(i) The gifted girls both at school and college levels tend to be more reserved, detached, cool, critical, sceptical and aloof. The musically non-gited girls on the other hand, tend to be warm-hearted, easy-going good-natured, affectothematic, co-operative, attentive and like public dealings and socially impressive situations.

(ii) The musically gifted girls tend to be quick to grasp ideas, fast learners and intelligent. They are bright with abstract thinking and have higher mental capacity as compared to non-gifted girls who are less intelligent, capable of concrete thinking and lower in mental capacity. They are also slow in learning and grasping ideas.

(iii) The musically gifted girls are emotionally less stable, easily upset with lower ego strength, they are low in frustration tolerance, neurotically fatigued, fretful, easily emotional and annoyed, active in dis-satisfaction. On the other hand, the musically non-gifted girls are emotionally stable, reality facing type with higher ego strength, better able to manage solid group morale and able to make resigned adjustment to unsolved emotional problems.

The musically gifted girls both at school and college levels tend to be deliberate, inactive and stodgy as compared to musically non-gifted girls who are impatient, demanding and over-active.

The musically gifted girls at both levels are mild, accommodating, conforming and submissive, docile in nature, dependent, confessing anxiety for obessional correctness. On the other hand, musically non-gifted girls are independent, aggressive, stubborn, extrapunitive and authoritarian. The musically gifted girls are sober, prudent, serious and taciturn, they are restrained, reticent, introspective etc. whereas the musically non-gifted girls are happy-go-lucky, gay, enthusiastic, cheerful, active, talkative, frank, expressive, effervescent and carefree.

The musically gifted girls, at both the levels, are restrained, diffident, timid, shy, withdrawing, cautious, retiring, suffering from inferiority complex, slow and impeded in speech. Contrary to this, musically non-gifted girls are venturesome; socially bold, uninhibited and spontaneous, pushy and interested in opposite sex.

The musically gifted girls are more apprehensive, suffering from worry, depressive and troubled, moody, foreboding, and brooding, childlike tendencies to anxiety and do not feel accepted in groups as compared to musically non-gifted girls who are more self-assured, confident, reserve and untroubled. They tend to be placid with unshakable nervous system and have mature, unanxious nervous system, resilient and secure but only to the point of being insensitive.

The musically gifted girls at school level prefer their own decisions and actions, are resourceful, discount public opinion but need group support where as non-gifted girls in music prefer to work and make decisions with other people.

The musically gifted girls, both at school and college levels, are socially aware and careful, have a feeling of self respect and social reputation. Contrary to it, whereas musically non-gifted possess indisciplined, self-conflict, carelessness about protocol and follow their own urges. Further they are not overly considerate, careful and painstaking.

The musically gifted and musically non-gifted girls have no difference in the personality make up regarding "Expedient Vs. Conscentious", "Tough minded Vs. Tender minded", Vigorous Vs. Doubting", Relaxed Vs. Tense". Apart from these factors, the girls at the college level also show no difference in the factor of "Group dependent Vs. Self-sufficient".

It can be generalized that both at school and college levels the musically gifted girls possess a personality structure which is marked by introverted tendencies, anxiety, neurotic feelings and are socially conscious. The personality of musically non-gifted girls is marked by extroverted tendencies, non-neurotic tendencies and socially precise.

Study of Intelligence

(i) The musically gifted girls, both at school and college levels, are more intelligent as compared to non-gifted girls.

(ii) The level of education is independent of the intelligence of the students.

(iii) The intelligence is independent of interactional effect of giftedness/non-giftedness and level of education.

It can be generalized that the giftedness in music is a function of intelligence.

Study of Creativity

(i) The creativity is not a function of either giftedness or non-giftedness in music.

(ii) The creativity does not depend upon the level of education.

(iii) The interactional effect of degree of giftendness and level of education has no effect upon creativity.

Study of Adjustment

(i) The significant differences in the areas of adjustment between musically gifted and non-gifted were as such:

(*A*) *Home Adjustment*

(i) Home adjustment is independent of either giftedness in music or non-giftedness in music.

(ii) The girls at the college level are better adjusted on the 'Home dimension' as compared to school girls.

(iii) There is no significant difference in the interaction of home adjustment i.e. musically gifted and non-gifted at school and college level.

(*B*) *Health Adjustment*

(i) Health adjustment is independent of degree of giftedness in music as well as level of education.

(ii) There is no interactional effect of giftedness/non-giftedness as well as level of education on the health adjustment of the girls.

(*C*) *School/College Adjustment*

(i) Educational adjustment is independent of the giftedness in music as well as the level of education.

(ii) Educational adjustment is independent of the interactional effect of giftedness/non-giftedness in music and the level of education.

(*D*) *Emotional Adjustment*

(i) The musically non-gifted girls are more emotionally adjusted as compared to gifted girls in music.

(ii) The interactional effect of degree of giftedness/non-giftedness and level of education whether at school or college have no significant effect upon the emotional adjustment of girls.

(E) Social Adjustment

(i) Social adjustment is dependent upon the degree of giftedness in music, thereby, indicating that non-gifted girls are socially better adjusted than the gifted girls.

(ii) Social adjustment is independent of the level of education.

(iii) Social adjustment is independent of the interactional effect of giftedness/non-giftedness in music and the level of education.

8.2. Educational Implications

The study of psychology of musically gifted and non-gifted girls reveals the findings which have the following educational implications.

(i) The findings of present study are an eye opener to those teachers and educationists who think that music is a subject which could be taken by anybody. In actual practice also, if a student fails to make grade in any subject, he is usually guided to take up music as one of the subjects, this is especially not true at college level because it requires a particular level of intelligence to show excellence in music.

(ii) The musically gifted girls are usually alleged to have poor school or college adjustments. This is usually attributed as a pre-requisite to succeed in the music subjects on the grounds that the students who are good in music remain usually involved in their music subject to such an extent, that they do not care for their adjustment in school and college. It has been found in the present investigation that giftedness in music has nothing to do with the school and college adjustment. Therefore, it is implied that the reasons of the adjustment problems of gifted students in music be explored and it should not be considered as the sole reason for their maladjustment in music.

(iii) It has been found that musically gifted girls are reserved, cool, detached etc. Their personality make up is more marked by the "Introverted Tendencies", anxiety and neurotic feelings. It is implied from the results that the causative factor for these types of personality traits be explored and the potential musically gifted girls be saved from the mental torture.

(iv) Since the musically gifted girls are more intelligent as compared to musically non-gifted girls, therefore, the educational administrators can take measure of intelligence as a screening device while admitting students for musical studies.

(v) The level of education did not show anything significant at any stage. Therefore, it is implied that selection even at college level can be done satisfactorily with the procedures adopted at the school level.

(vi) The creativity has little to do with the giftedness in music, therefore, it is not fair to expect that creatives will make any productive contribution.

(vii) The musically gifted girls suffer from emotional adjustment problems, therefore, it is obligatory that musically gifted students should always be studied in detail by preparing case studies. An attempt should also be made to provide remedial measures for their emotional problems.

(viii) The home adjustment has been found to be related with the level of education. Adjustment differences have been noticed among musically gifted and non-gifted girls in home for school level students. This gives an added responsibility to the teachers to understand these students and remove their problems arising due to home conditions or so.

8.3. Suggestions

Some suggestions with regard to further possibilities in the field are offered with a view to stimulate prospective research workers in this area. These are as follows :

(i) A differential aptitude test battery can be prepared and the population could be discriminated into gifted and non-gifted in scientific and systematic manner with the help of discriminant function.

(ii) A series of studies can be initiated to bring out the causative factors which make person gifted in music.

(iii) A study can also be designed to study the environmental effect of both the school and college on the giftedness and non-giftedness in music.

(iv) The present study could be replicated on a much more representative sample taken from different age groups and grade groups.

(v) A factorial study can be taken up by involving the psychological variables to understand the simple factor structure of factors associated with giftedness.

(vi) A fallow up study can also be taken up of gifted pupils, so that their personality structure may be explored with the help of longitudinal objective record.

Bibliography

Alifers, J. (1954), "Alifers Music Achievement Test". Minneapolis Univ. of Minnesota Press.

Allen, R.D. and Butterfield, W.H., "Providence Inventory Test in Music". New York: Yonkers, World Book.

Antrim, D.K. (1945), "Do Musical Talents Have Higher Intelligence" ? Edude, 1963.

Appleton, R.F. (1969), "The Telearchic Search in Creative Process" Doctoral Dissertation, Teachers College, Columbia University, New York.

Bahle, J. (1934), "Die Gestaltubertragung in Vokalen Schaffen Zeitgenossischer Komponisten". Arch. Ges. Psychol., 91.

Balakrishnan, R., "A Study of Relationship Between Creativity and Job Satisfaction", Unpublished M.A. (Psy.) Dissertation, Presidency College, Madras.

Barron, F. (1968), "Creativity and Personal Freedom", New York: D. Vam Nostrand Co., Inc. Princeton.

Biller, B., Singer, D.L. and Fullerton, M., "Sex Role Development in Kindergarton Age Boys". Mimeographed Copy, Duke Univ., N.C.

Billroth, T. (1895), "Werist Musikalish ? Berlin: Ed., Hansick".

Becker, H.S. (1951), "The Professional Dance Musician and His Audience". Amer. J. Social., 57.

Beach, F.A. (1939), "Beach Music Test". Emporia: Bureau of Edul. Measurements, Kanas State Teachers' College, Serised.

Benham, E. (1929), "The Creativity Activity". Brit. J. Psychol., 20.

Bentley, J.E. (1937), "Superior Children". New York: Norton and Co., Inc.

Bentley, A. (1966), "Musical Ability in Children and its Measurement". London: Harrap.

Bennett, R. (1970), "A Philosophy of Music Education". New Jersey: Englewood Cliffs, Prentice-Hall, Inc.

Bergan, J.R. (1966), "Factors Affecting Pitch Discrimination". Bull. Council Res. Mus. Ed., No. 8.

Broadbent, D.E. (1958), "Perception and Communication". London: Pergamon.

Brown, G.F. (1970), "Principles of Educational Psychological Testing". Illionois: The Dryden Press Inc., Hunsdale.

Bessom, M.E., Tatarunis, A.M. and Forcucci, S.L. (1974), "Teaching Music in Today's Secondary Schools—A Creative Approach to Contemporary Music Education". New York: Holt, Rinehart and Winston, Inc.

Burt, C. (1909), "Experimental Tests of General Intelligence". Brit. J. Psychol., 3.

Burt, C. (1958), "The Backward Child". London: 4th Ed., University of London Press.

Carl Rogers (1954), "Psychotherapy and Personality Change". Chicago University of Chicago Press.

Carroll, H.A. (1930), "Generalization of Bright and Dull Children". Teach. Coll., Counter., Edu., No. 439.

Cattell, R.B. (1963), "Manual of Jr.-Sr. High School Personality Questionnaire". Illinois: U.S.A.

Chassell, L.M. (1916), "Tests for Originality". J. of Edul. Psy., 7.

Chowdhury, M. Ray (1961), "Personality of the Artists". Musicians & Literature, Proceedings of Indian Science Congress Part-III, (Abst.) 572.

Chowdhury, M. Ray (1966), "Studies in Artistic Creativity". Calcutta: Ravindera Bharti, 19.

Chaudhri, K. Ray (1961), "Guide to Using Aligarh Verbal Test in Hindi". Deptt. of Psy., A.M.U. Aligarh.

Cohen C.J. (1974), "Programming for the Gifted" The Fund 4(3).

Coleman, J. (1972), "Abnormal Psychology and Modern Life". New York: 4th Ed., Scott, Foresman.

Cox, C. (1926), "Genetic Studies of Genius". Vol. 2, Stanford Calif., Stanford University, Press.

Cronbach, L. (1968) "Intelligence ? Creativity ? A Parsimonious Reinterpretation of the Wallach-Kogan Data". Amer. Edu. Res. J. 5.

Cropley, A.J. (1966), "Creativity and Intelligence". Brit. J. Edul. Psychol., 36.

Cropley, A.J. (1968), "A Note on the Wallach-Kogan Tests of Creativity". Brit. J. of Edul., Psy., 38.

Cropley, A.J. and Maslany, C.W. (1969), "Reliability and Factorial Validity of the Wallach Kogan Creativity Tests". Brit. J. of Psychol., 60.

Davis, F.B. (1962), "Item Analysis in Relation to Educational and Psychological Testing". Psychol., Bulletin.

Dearborn, G.B. (1898), "A Study in Imagination". American J. of Psychol., 9.

Edmunds, C.B. (1960), "Musical Ability, Intelligence and Attainment of Secondary Modern and E.S.N. Children". Thesis, Leeds University.

Edwards, A.L. (1971), "Experimental Design in Psychological Research". New Delhi: Amerind Publishing Co., Pvt., Ltd.

Edward, M.P. and Tyler, L.E. (1965), "Intelligence, Creativity and Achievement in Non-Selective Public Junior High School". J. of Edul. Psy.

Eherenzweig, A. (1953), "The Psycho-analysis of Artistic Vision and Hearing". London: Routledge and Kegan Paul.

Ehrsam, E. (1955), "Uberden Falleiner Einseitigen Musikalischen Begabund Eines Blinden Kinds Bei Hachgradigen Leistungsru Chstand Psychiat. Neurai M. Ed. Psychlo., Leipzig.

Emerson, P.E. (1964), "The Development of Social Attachment in Infancy. Monographs of the Society for Research in Child Development, 29, Serial No. 94.

Farnsworth, P.R. (1938), "Ratings in Music, Art and Abnormality in the First Four Grades". J. Psychol., 6.

Farnsworth, P.R. (1958), "The Social Psychology of Music". New York: Dryden Press.

Ferguson, G.A. (1971), "Statistical Analysis in Psychology and Education". New York: McGraw Hill Book Co.

Franklin, E. (1956), "Tonality as a Basis for the Study of Musical Talent". Goteberg: Gumperts Forlag.

Garrett, H.E. (1967), "Statistics in Psychology and Education". Bombay; Vakils, Feffer and Simons Pvt. Ltd.

Gehee, W. and Lewis, W.D. (1942), "A Comparison of Certain Personality Characteristics of Musically Superior and Musically Retarded Children". J. Educl. Res.

Getzel, J.W. and Jackson, P.W. (1962), "Creativity and Intelligence Explorations with Gifted Students". New York: John Willey.

Gopal, A.K. (1974), "Certain Differentiating Personality Variables of Creative and Non-Creative Science and Engineering Students". Unpublished Ph. D. (Edu.) Thesis, Kurukshetra University.

Gordon, E. (1971), "Psychology of Music Teaching". New Jersey Englewood Cliffs Prentice Hall, Inc.

Graf, M. (1947), "The Psychology of the Composing Process". New York: Philosophical Library.

Gross, G. and Seashore, R.H. (1941), "Psychological Characteristics of Students and Professional Musical Composers". J. Apple. Psy., 25.

Guilford J.P. (1964), "General Psychology". New Jersey: Princeton D. Van. Nostrand Co., Inc. (East-West Students Edition).

Guilford J.P. (1964), "The Nature of Human Intelligence". McGraw Hill.

Guilford, J.P. (1973), "Fundamental Statistics in Psychology and Education". Fifth Edn. McGraw Hill Kogakusha Ltd.

Gullikson, H. (1967), "Theory of Mental Tests". New York: John Wiley & Sons Inc.

Hebb, D.O. (1949), "The Organisation of Behaviour". New York: John Wiley.

Hevner, K. (1937), "The Aesthetic Experience: A Psychological Description". Psychol., Rev., 44.

Hiriartborde, E. (1964), "Les Aptitude Rythmiques". Paris: Dactyo-sorbonne.

Holmstrom, L.G. (1963), "Musicality and Prognosis". Upsala: Almqvist and Wiksells.

Hollingworth, L.S. (1926), "The Musical Sensitivity of Children Who Test Above 135 I.Q." J. Edu. Psychol., 17.

Hudson, L. (1966), "Contrary Imaginations". London: Methuen.

Jacke, J. (1930), "Das Spezifisch-Musikalische Und Die Frage Nach Dem Sinngehalt Der Musick". Arch. Ges. Psychol., 78.

Jayanthi, J., "A Study of Relation of Traditional Family Ideology to Creativity". Unpublished M.A. (Psy.) Dissertation Presidency College, Madras.

Kelly, T.L. (1939), "The Selection of Upper and Lower Group for the Validation of Tests Items". J. of Edul. Psy., Vol. 4.

Keston, M.J. and Pinto, J.M. (1955), "Possible Factors Influencing Musical Preference". J. Genet. Psy., 86.

Keston, M.J. (1956), "An Experimental Investigation of the Relationship Between the Factors of the Minnesota Multiphasic Personality Inventory and Musical Sophistication". Amer, Psychol.

Kotick, M.L. and Togerson, T.L. (1950), "Diagnostic Tests of Achievement in Music". Los. Angles: Calif. Test Bureau.

Kwalwasser, J. (1955), "Exploring the Musical Mind". New York: Coleman-Ross.

Kwalwasser, J. and Ruch, G. (1924), "Kwalwasser Ruch Test of Musical Accomplishment". Lowa City: Bureau of Edu. Res. and Serv.

Lakshmi, M., "A Comparative Study of the Self-Image of High and Low Creative". Unpublished M.A. (Psy.) Dissertation, Presidency College, Madras.

Lasker, H. (1971), "Teaching Creative Music in Secondary Schools". Boston: Allyn and Bacon. Inc.

Lastrucci, C.L., "The Professional Dance Musicians". Thesis Stanford University.

Lehman, H.C. (1945), "Intelligence Vs. Physical Peak". Performance Sci. Month, 61.

Lehman, C.F. (1952), "A Study of Musically Superior and inferior Subjects as Selected by the Kwalwasser-Dykema Music Tests". J. Educ. Res., 45.

Lindman, M.D. and Fullagor, C.J. (1975), "Creativity and Intelligence in South African Adolescent". J. of Behavioural Sciences, Vol. 2 (4).

Lindeman, R.H. (1971), "Education Measurement". Bombay : D.B. Taraporevala Sons and Co. Pvt. Ltd.

Lindquist, E.F. (1951), "Educational Measurement". Washington : D.C. American Council on Education.

Ludin, R.W. (1949), "The Development and Validation of a Set of Musical Ability Tests". Psychol. Monog., 63, No. 10.

Lulla, B.P. (1966), "Report on Education of the Backward and the Gifted Children". Sponsored by Centre of Advance Study in Education, Faculty of Education and Psychology, M.S. University of Baroda.

Mainwaring, J. (1931), "Experiments on the Analysis of Cognitive Processes in Musical Ability". Brit. J. Educ. Psychol., I.

Macaulay, A.S., "Musical Aptitude Test". Los Angles : Calif. Test Bureau.

McColy, W. and Meier, N.C. (1939), "Recreative Imagination". Psychol. Monog., 51, No. 3.

McGhee, W. and Lewis, W.D. (1942), "A Comparison of Certain Personality Characteristics of Musically Superior and Musically Retarded Children". J. Educl. Res.

McLeish, J. (1953), "In the Fourth Mental Measurements Year Book". Brunswick, M.J. Rutgers Univ. Press.

Mednick, S.A. (1962), "The Associative Basis for Creative Process". Psychological Review.

Miles, C.C. and Wolfe, L.S. (1936), "Childhood Physical and Mental Health Records of Historical Geniuses". Psychol. Mongo, 47.

Mouley, G.J. (1963), "The Science of Educational Research". New Delhi : Eurasia Pub. House Pvt. Ltd.

Murphy, J W. and Terrin, O. (1975), "Education of the Gifted". Disstt. Abs. California, 3246 A.

Mursell, J.L. (1937), "The Psychology of Music". New York, Norton.

Paramesh. C.R. (1972), "Adaptation of the Wallach-Kogan Instruments of Creativity". Unpub. Ph. D. Thesis Univ. of Madras.

Pressey, L.C. "The Specialized Vocabularies of the Public School Subjects". Bloomington : III Public School Publ.

"Report of the Education Commission 1964-66", Summary of Recommendations, New Delhi : N.C.E.R.T., 1967, 44.

Report to the Congress from the U.S. Commissioner of Education" November, 1971.

Revesz, G. (1954), "Introduction to the Psychology of Music". Norman : Univ. of Okl. Press.

Rife, D.C. and Snyder, L.H. (1931), "Studies in Human Inheritance". Hum., Biol., 3.

Roderick, J.L. (1965), "An Investigation of Selected Factors of the Creative Thinking Ability of Music Majors in a Teacher Training Programme". Ed. D. Thesis, Music, Univ. Illinois.

Rogers C., (1954), "Towards a Theory of Creativity" Conference on Creativity. A Report of the Rockfeller Foundations, Ohio State University ; Columbia.

Rotter, D.M., Langland, L. and Dale, B. (1971), "The Validity of Tests of Creative Thinking in 7 Years Old Children". Gifted Child Quarterly, Vol., 15 (4).

Sandhu, J.S. (1974), "A Study of Adjustment Differences Among Creative and Non-Creative College Students". Unpublished M.A. (Edu.) Dissertation, Kurukshetra University.

Schoen, M. (1940), "The Psychology of Music". New York : Ronald Press.

Schwadron, A.A. (1967), "Aesthetics Dimensions for Music Education". Washington , D.C. Music Educators National Con.

Seashore, C.E. (1919), "The Psychology of Musical Talent". New York : Silver Burdett.

Seashore, C.E. (1938), "Psychology of Music". New York : McGraw Hill Co.

Shanker, U. (1976), "Exceptional Children". New Delhi : Sterling Pub. Pvt. Ltd.

Sharma, G.C. (1969), "Personality of Artists". Indian J. of App. Psy., 6 (1)

Shuter, R.P.G. (1966), "Hereditary and Environmental Factors in Musical Ability". The Eugen. Rev., 58.

Shuter, R. (1968), "The Psychology of Musical Ability". London, Methuen and Co. Ltd., 11 New Fetter Lane E.C. 4.

Singer, D.L. and Rummo, J. (1973) "Ideational Creativity and Behavioural Style in Kindergarten Age Children". Developmental Psychology, Vol. 8 (2).

Snedecor, G.W. and Cochran, G.W. (1967), "Statistical Methods, New Delhi : Oxford and IBM Publishing Co.

Stein, M.I. (1953), "Creativity and Culture". J. Psy., 36.

Super, D.E. (1940), "A Vocational Interest Patterns. A Study in Psychology of Avocations". Stanford : Stanford Univ. Press.

Suri, A. et. al., (1979)., "Musical Preference in Relation to Discrimination Between Notes and Certain Personality Variables". Indian J. of Applied Psy., Vol.1 6, No. 1.

Szucharewa, G. and Ossipowa, S. (1926), "Materialenzur Erforschung der Karrelationeu Zwischen den Typen der Begabung U.d. Kosistitution Zsch. des Neural, U. Psychiat 100.

Taylor, I.A. (1959), "The Nature of the Creative Process" In Smith, P. (ed). Creativity : An Examination of the Creative Process, New York : Hastings House.

Thorndike, R.L. and Hagen, E. (1961), "Measurement and Evaluation in Psychology and Education". New York : 2nd Ed., Wiley, Eastern Pvt. Ltd.

Thurstone, L.L. (1952). "Creativity Talent. Application of Psychology" : New York : Harper and Row. Pub.

Torgerson, T.L. and Fahnestock, E.E. (1940), "Togerson Fahnestock Music Test". Bloomington : III., Public School Publ.

Toynbee, A. (1964), "Is America Neglecting Her Creative Minority ? In C.W. Taylor (Ed.), Widening Horizons in Creativity New York : John Wiley and Sons ; Inc.

Verma, L.K. (1975), "A Study of Locus of Control of High Creative and Low Creative High School Students". M.A. (Edu.) Unpublished Dissertation, Kurukshetra Univ.

Vernon, P.E. (1969), "Personality Assessment : A Critical Survey". London : Methuen and Co. Ltd.

Vidor, M. (1931). "Was Ist Musikalitst ? Munich : Beck.

Wallach M.A. and Wing C.W. Jr. (1969), "The Talented Students—A Validation of the Creative Intelligence Distinction." Holt, Rinehart and Winston ; New York :

Wallach, M.A. and Kogan, N. (1965) "Modes of Thinking in Young Children--A Study of the Creative Intelligence Distinction" New York : Rinehart and Winston.

Wall-Brown, F.H. (1972), "A Validity Study of Wallach-Kogan Creativity Tests—The Prediction of Six Concurrent Criteria in Visual Art". Dissertation Abstracts International, 32.

Walter, B. (1961), "Of Music and Music-Making, Trans". London : Faber and Feber (Hamburger).

Wells, F.L. (1949), "Adjustment Problems at Upper Extremes of Test Intelligence Cases" J. of Genetic Psy., Vol. LXXIV.,

Whittington, R.W.T. (1957), "The Assessment of Potential Musical Ability in Secondary School Children". J. Edu. Psychol, 48.

Wing, H.D. (1948), "Tests of Musical Ability and Appreciation". Brit. J. Psychol. Monogr. Suppl. No. 27.

Wing, H.D. (1954), "Some Applications of Tests Results to Education in Music". Brit. J. Edul. Psychol, 24.

Wing, H.D. (1955), "Musical Aptitude and Intelligence" Education Today, 5, No. 1

Wing, H.D. (1941), "A Factorial Study of Musical Tests". Brit. J. Psychol., 31.

Yammoto, K. (1965), "Effects of Restriction of Range on Test Unreliability on Correlation Between Measures of Intelligence and Creative Thinking". Brit. J. of Psy.

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